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MAPS

PROVINCIAL GAZETTEERS OF INDIA

BENGAL

VOLUME I

Bengal[1] (more precisely designated, Lower Bengal).—The largest and most populous Province in India. It lies between 19° 18′ and 28° 15′ N. and between 82° and 97° E., and contains four large sub-provinces—Bengal proper, Bihār, Chotā Nāgpur, and Orissa. The two former comprise the lower plains and deltas of the Ganges and the Brahmaputra. Chotā Nāgpur is a rugged tract of hill and jungle, broken by deep ravines and river valleys. The greater part of Orissa belongs to

Physical aspects. General outline.

[1] The article was written before the changes were carried out which constituted the new Province of Eastern Bengal and Assam. These were determined upon to lighten the excessive burden imposed upon the Government of Bengal by the increase of population, the expansion of commercial and industrial enterprise, and the growing complexity of all branches of administration. The Province had hitherto comprised an area of nearly 190,000 square miles, with a population of over 78 millions, and a gross revenue amounting to more than 1100 lakhs. In these circumstances, the relief of the Bengal Government had become an administrative necessity, and it was decided that it could be afforded only by actual transference of territory, and not by organic changes in the form of government. Accordingly, on October 16, 1905, the Divisions of Dacca, Chittagong, and Rājshāhi (except Darjeeling), the District of Mālda, and the State of Hill Tippera were transferred to the newly formed Province of Eastern Bengal and Assam, the area under the jurisdiction of the Bengal Government being thus reduced by 50,000 square miles and its population by 25,000,000. The five Hindī-speaking States of Jashpur, Surgujā, Udaipur, Koreā, and Chāng Bhakār were at the same time transferred to the Central Provinces; while the District of Sambalpur with the exception of two *zamīndāris*, and also the Oriyā-speaking States of Patnā, Kālāhandī or Karond, Sonpur, Bāmra, and Rairākhol in the Central Provinces, were attached to Bengal. The result of these transfers of territory is that the Province as now constituted comprises an area of 148,592 square miles, with a population of 54,662,529 persons. In order to show the effect of this change in the constitution of the Province, footnotes have been added, wherever possible, giving statistics for the new area; and the States, Divisions, Districts, and towns transferred from Bengal have been indicated by asterisks.

the same formation as Chotā Nāgpur; but along the coast there is a narrow belt of alluvium, formed from the silt deposited by the rivers, which drain the hills as they find their sluggish way to the sea.

Boundaries. The Province is bounded on the north by Nepāl and Tibet, and by the mighty chain of the Himālayas; on the east by Assam and the continuation of the range of hills which divides Assam from Burma; on the south by the Bay of Bengal and Madras; and on the west by the United and the Central Provinces.

The whole Province forms a Lieutenant-Governorship with an area[1] of 196,408 square miles, of which 84,728 square miles are included in Bengal proper, 44,259 in Bihār, 24,306 in Orissa, and 43,115 in Chotā Nāgpur. These figures include an unsurveyed tract of swamp and jungle on the fringe of the delta, the extent of which is about 6,600 square miles. Of the total area, 157,796 square miles are British territory, while 38,612 square miles lie in the Native States attached to Bengal: namely, Cooch Behār, Sikkim, Hill Tippera *, and the Tributary States of Orissa and Chotā Nāgpur.

Origin of name. According to Hindu legend, king Bali of the Lunar race had five sons, begotten for him on his queen Sudeshnā by the Rishi Dīrghatamas: namely, Anga, Vanga, Kalinga, Pundra, and Suhmā. Each of these sons founded a kingdom that was named after him. Vanga[2] or Banga is said to have occupied the deltaic tract south of the Padmā, lying between the Bhāgīrathi and the old course of the Brahmaputra, and to have been conquered by the Pāndava Bhīm and also by Raghu. The inhabitants of this region are described in the *Raghubansa* as living in boats, and as growing transplanted rice for their staple crop. In the time of Ballāl Sen the tract immediately to the east of the Bhāgīrathi was called Bāgri, and Banga occupied the eastern portion of the delta. The tract west of the Bhāgīrathi was known as Rārh, which in Prākrit was softened to Lāla. Possibly Bengal or Bangāla is a combination of Banga Lāla, and, in any case, there can be no doubt that the word is connected with the ancient Vanga.

[1] Of the total area of 148,592 square miles now included in Bengal, 35,576 square miles are in Bengal proper (including 5,700 square miles in the Sundarbans), 43,524 square miles are in Bihār, 41,789 in Orissa, and 27,703 in Chotā Nāgpur. Altogether, 115,819 square miles are British territory and 32,773 square miles are Native States.

[2] The word Vanga first appears as the name of a country in the *Aitareya Aranyaka* (2-1-1), where its inhabitants are represented as eaters of indiscriminate food, and as progenitors of many children.

During the period of Muhammadan rule the term was applied specifically to the whole delta, but later conquests to the east of the Brahmaputra and north of the Padmā were eventually included in it. Under the British the name has at different times borne very different significations. All the north-eastern factories of the East India Company, from Balasore on the Orissa coast to Patna in the heart of Bihār, belonged to the 'Bengal Establishment,' and, as its conquests crept higher up the rivers, the term continued to be the designation of the whole of its possessions in Northern India. From the time of Warren Hastings to that of Lord William Bentinck, the official style of the Governor-General was 'Governor-General of Fort William in Bengal.' In 1836, when the Upper Provinces were formed into a separate administration, they were designated the North-Western Provinces, in contradistinction to the Lower Provinces; and although they, as well as Oudh, the Punjab, the Central Provinces, and Burma, were sometimes loosely regarded as forming the Bengal Presidency, the word was ordinarily used in this sense only for military purposes, to denote the sphere of the old Bengal army, as distinguished from the armies of Bombay and Madras. In its ordinary acceptation, the term now covers only the jurisdiction of the Lieutenant-Governor of Bengal. The term 'Bengal proper' has a still more restricted meaning, and indicates, roughly speaking, the country east of the Bhāgīrathi and Mahānandā, where the prevalent language is Bengali.

Natural divisions.

Bengal contains tracts of very different physical features, including the alluvial plains of the GANGES and the BRAHMAPUTRA, and the deltas of those rivers, which form the greater part of Bihār and Bengal proper; the crystalline plateau of Chotā Nāgpur, including the Tributary States of Orissa, and the hills stretching to the Ganges at Rājmahāl; the narrow strip of alluvium comprising Orissa; and lastly, a small portion of the sub-Himālayas, Sikkim State, and a tract which once belonged to Sikkim but now forms the main part of Darjeeling District. It is thought that there was formerly a continuous chain of hills connecting the Rājmahāl range with the remains of the 'peninsular system,' still in existence in Assam, and that their subsidence was due to the same disturbances that resulted in the elevation of the Himālayas. The hollow thus formed has been filled in by the deposits of the Himālayan rivers; but the gradual raising of the surface has been, to a great extent, discounted by fresh subsidences, which have been accompanied by upheavals elsewhere. However this may be,

the uplands of Chotā Nāgpur date from a very ancient period, while the Himālayas were thrown up at a time which, from a geological point of view, is comparatively recent, and the alluvium in the greater part of Bengal proper has been deposited at a much later date than that in the Bihār plain west of Rājmahāl.

Bihār. The sub-province of Bihār occupies the north-western quarter of Bengal. It is divided by the Ganges into two parts—north and south. North Bihār is a level plain falling very gradually from the foot of the Himālayas, and with a belt of fairly high land along the bank of the Ganges. Between these two extremes the general elevation is lower, and considerable areas are liable to damage by floods. The soil consists mainly of the older alluvium or *bāngar*, a yellowish clay, with frequent deposits of *kankar*; but in many parts this has been cut away by the torrents that rush down from the Himālayas, and the lowland, through which these rivers have at one time or another found an exit to the Ganges, is composed of more recent deposits of sand and silt brought down by them when in flood. In South Bihār the effects of recent fluvial action are less marked, especially towards the east, where the outlying hills and undulations of the Chotā Nāgpur plateau trench more and more upon the Gangetic plain until, at Monghyr, they extend as far as the river itself, and offer an effectual opposition to the oscillations in its course which the more yielding alluvial soil is unable to prevent elsewhere. The Bihār of our administration contains two tracts which do not properly belong to it. The SANTĀL PARGANAS in its physical and ethnic features is an integral part of Chotā Nāgpur, while MĀLDA * and the eastern part of PURNEA belong to Bengal proper.

Bengal proper. The latter sub-province naturally subdivides itself into four distinct parts. West Bengal, or the part west of the Bhāgīrathi, lies outside the true delta. The eastern portion of this tract is low and of alluvial formation; but farther west laterite begins to predominate, and the surface rises and becomes more and more undulating and rocky, until at last it merges in the uplands of Chotā Nāgpur. Central Bengal, or the part lying south of the Padmā, between the Bhāgīrathi on the west and the Madhumatī on the east, was formerly the Ganges delta; but it has gradually been raised above flood-level, and the great rivers which formerly flowed through it, depositing their fertilizing silt, yielding an ample supply of wholesome drinking-water, and draining it, have shrunk to insignificance. Their

mouths have silted up and their banks are often higher than the surrounding country, which they are no longer able to drain. East Bengal, or the country east of the Madhumatī, includes the present delta of the Ganges and Brahmaputra, where the process of land-formation is still going on; but in the south-east the hill range that divides Assam from Burma projects into it, while on the confines of Dacca* and Mymensingh* the MADHUPUR JUNGLE*, a tract of *quasi*-laterite, rises above the recent alluvium. North Bengal lies north of the Padmā and is wholly alluvial, with the exception of the Himālayan State of Sikkim, the greater part of the District of Darjeeling, and an elevated tract known as the BĀRĪND*, similar to the Madhupur Jungle, which occupies a considerable area on the confines of Dinājpur*, Mālda*, Rājshāhi*, and Bogra*. In spite of its proximity to the hills, the general level of the alluvial country is very low, especially in Cooch Behār, Rangpur*, and the central part of Rājshāhi*; and it suffers from obstructed drainage, due to the silting-up of the rivers and the gradual raising of their beds.

The plains of Orissa are a flat alluvial tract of which the centre and south comprise the delta of the MAHĀNADĪ, and the north has been formed by the fluvial deposits of the rivers which drain the southern flank of the Chotā Nāgpur plateau. Behind these plains rises a belt of hills, which gradually merge in the rocky uplands of the Tributary States. Orissa.

Chotā Nāgpur, with the Santāl Parganas and the Tributary States of Orissa, belongs throughout to the same geological formation. On the whole, the level rises gradually towards the north and west, but some of the highest peaks are in the south. Chotā Nāgpur.

The main axis of the HIMĀLAYAS skirts the northern boundary of Sikkim, dividing it from Tibet; but one of the loftiest mountains in the world, KINCHINJUNGA (28,146 feet), lies within Sikkim, and three outliers project far into the plains of Bengal. The SINGĀLILĀ range strikes southward from Kinchinjunga in 88° E., and forms the boundary between Nepāl and Darjeeling, its highest peaks being Singālilā (12,130 feet), SANDAKPHŪ (11,930 feet), PHALŪT (11,811 feet), and SABARGAM (11,636 feet), and the connected ranges and spurs covering the greater part of Darjeeling District. Fifty miles to the eastward, the Chola range runs southward from the Dongkya peak (23,190 feet), dividing Sikkim from Tibet and Bhutān on the east; it is pierced by the JELEP LA PASS, at 14,390 feet, and separates the basin of the TĪSTA on the west from that of the TORSĀ on the east. At Gipmochi (the Mountains.

tri-junction point of the Sikkim-Bhutān-Tibet boundary) this range bifurcates into two great spurs; one runs to the south-east and the other to the south-west, including between them the valley of the Jaldhākā. From Chumalhari (23,933 feet) another great ridge strikes south through Bhutān between the basins of the Torsā (the Chumbi Valley) and Raidāk rivers, terminating in the SINCHULĀ hills which form the boundary between Jalpaigurī District* and Bhutān. The sub-Himālayan zone is represented by the Someswar hills (2,270 feet), which form the boundary between Champāran District and Nepāl.

The Chotā Nāgpur plateau is contiguous to the Vindhyan system and attains an elevation of 2,000 feet. There are in reality three separate plateaux divided by belts of rugged hill and ravine; and a confused mass of hills fringes the plateaux, extending in the RĀJMAHĀL HILLS and at Monghyr north-east to the Ganges, and southwards over the Orissa Tributary States, while outlying spurs project far into the plains of South Bihār and West Bengal. PARASNĀTH (4,480 feet) in Hazāribāgh District is the loftiest of these spurs, and the SARANDA hills in Singhbhūm rise to 3,500 feet.

On the south-eastern frontier a succession of low ranges running north and south covers the east of the Chittagong Division* and Hill Tippera*. The SĪTĀKUND* hill rises to 1,155 feet; but the ranges in the Chittagong Hill Tracts* attain a greater altitude, the highest peaks being Keokrādang (4,034 feet) and Pyramid hill (3,017 feet).

Rivers. The most distinctive feature of the Province is its network of rivers—the Ganges and the Brahmaputra, with their affluents and distributaries. These rivers are of use in many ways. They furnish an admirable and cheap means of transport; they contain an inexhaustible supply of fish; and they bring down vast quantities of fertilizing silt, which they distribute over the surface of the delta. The Ganges, which enters on the western frontier, flows almost due east, with numerous oscillations, as far as Rājmahāl, where it escapes from the restraining influence of the hard rocks of the Chotā Nāgpur formation and enters the loose alluvium of Bengal proper. Until some 400 years ago, its subsequent course was due south, down the channel of the BHĀGĪRATHI. By degrees this channel silted up and became unequal to its task, and the main stream of the Ganges was thus obliged to seek another outlet. In this way the ICHĀMATĪ, the JALANGĪ, and the MĀTĀBHĀNGA became in turn the main stream. The river tended ever eastwards, and at last, aided perhaps by one of

those periodic subsidences of the unstable surface of the country to which reference has already been made, it broke eastwards, right across the old drainage channels, until it was met and stopped by the Brahmaputra. The river, below the point where the Bhāgīrathi leaves it, is known as the PADMĀ.

Having its source at no great distance from that of the Ganges, but on the other side of the Himālayas, the Brahmaputra flows eastwards through Tibet, where it is known as the Tsan-po, until it reaches a point due north of the eastern extremity of Assam, when it takes a southerly course and, after forcing its way through the Eastern Himālayas, emerges in the plains of Assam. It then turns westwards and, after traversing the Assam Valley, enters Bengal from the north-east. It formerly followed the contour of the Gāro Hills and, bisecting the District of Mymensingh*, joined the MEGHNĀ, or the united channel of the rivers which drain the Surmā Valley and the surrounding hills of the Assam range and Lushai. This is the course shown on the maps of Rennell's survey in 1785; and it was not till the beginning of the nineteenth century that, having raised its bed and lost its velocity, it was no longer able to hold its own against the Meghnā, and suddenly broke westwards. Its new course runs due south from Dhubri and joins the Padmā near GOALUNDO*. From that point these two great rivers travel down a common channel and vie with each other in depositing their silt in the eastern corner of the delta, where the land area is now being rapidly thrust forward. They discharge into the Bay of Bengal down the Meghnā estuary.

Along the northern frontier of Bengal numerous rivers debouch from the Himālayas. There are reasons for supposing that formerly, when the Ganges and the Brahmaputra were still 150 miles apart, many of them united to form a great independent river which flowed southwards to the sea, sometimes east of the Bārind down the channel of the KARATOYĀ, and sometimes west of it by way of the MAHĀNANDĀ. It has been suggested that the Haringhāta was the original estuary of the Karatoyā and its affluents, and it is possible that the BHAIRAB was the ancient channel of the Mahānandā. Its tortuous course can still be traced on both sides of the Jalangī and the Mātābhānga; and it is only near the Padmā, almost opposite the point where the Mahānandā flows into it, that all upward traces of this old river disappear. At the present time the chief Himālayan tributaries of the Ganges in this Province are the GANDAK, the KOSĪ, and the Mahānandā, while

the TĪSTA—the modern representative of the Karatoyā—is an affluent of the Brahmaputra. On its right bank the Ganges receives the SON from Chotā Nāgpur; and its ancient channel, the Bhāgīrathi, which in the latter part of its course is called the HOOGHLY, is augmented from the same direction by the waters of the DĀMODAR and the RŪPNĀRĀYAN. Farther south, in Orissa, several rivers, draining the Chotā Nāgpur plateau, find an exit to the sea independently of the great fluvial system described above. Of these the chief are the SUBARNAREKHĀ, BAITARANĪ, BRĀHMANĪ, and MAHĀNADĪ.

In a level alluvial country like Bengal, where the soil is composed of loose and yielding materials, the courses of the rivers are constantly shifting; land is cut away from one bank and thrown up on the other; and the definition and regulation of the alluvial rights of the riparian proprietors and of the state form the subject of a distinct branch of Anglo-Indian jurisprudence.

Scenery. In spite of the dead level and the consequent absence of variety, the scenery of Bengal proper and Orissa has a distinct charm of its own. Even in the dry months the groves of bamboos and of mango, areca and coco-nut palm, tamarind, *pīpal*, and other trees, in which the homestead lands of the people are buried, afford a profusion of green vegetation very restful to the eye, while in the rains, from the time when the young rice seedlings cover the ground with a delicate green sward until December, when the golden heads of the mature plants fall before the sickle, the landscape verges very closely on the beautiful. In South Bihār the village sites are, for the most part, devoid of trees, and the houses are crowded together in inartistic confusion. Except for occasional mango groves and the trees on the steeper hills or along some of the main roads, there is very little vegetation when the crops are off the ground, and the prospect is bare and arid, until the rains cause the maize, millets, and early rice to germinate. In North Bihār trees are more plentiful, though much less so than in Bengal proper. The Chotā Nāgpur plateau is a tangled mass of rock and forest. The outlook is always diversified, and from the higher points magnificent views are obtained.

Lakes, *bīls*, &c. In their upper reaches the rivers have a rapid flow and carry away the soil; but when they enter the level flats of Bengal proper, their speed is reduced, and their torpid current is no longer able to support the solid matter hitherto held in suspension. They accordingly deposit it in their beds and on their banks, which are thus raised above the level of the

surrounding country, until at last the river breaks through to the adjacent lowland and makes for itself a new bed, where it repeats the process. Great marshes or *bīls* are often found within the enclosures thus formed by the high banks of rivers. These are generally connected with the outside rivers by *khāls* or drainage channels; but, owing to the tendency of all water-courses to silt up, they remain open only so long as the difference of level between the water in the basin and that outside is sufficiently great to maintain a flow which gives an efficient scour. The natural tendency of these swamps is to fill up; in the rainy season the rivers drain into them and deposit their silt, and decayed vegetable matter also gradually accumulates. In this way, but for the vagaries of the rivers and fresh subsidences of the surface, the irregularities in elevation would in course of time disappear. These marshes are met with all over Bengal proper; but they are especially numerous in the south of FARĪDPUR* and the west and north-west of BACKERGUNGE*, where the whole country is a succession of basins, full of water in the rains, but partially or wholly dry in the winter months. The largest of these depressions is the CHALAN BĪL*, lying partly in Rājshāhi* and partly in Pābna*, which has a water area varying from about 20 square miles in the dry season to 150 in the rains. The average depth of water during the dry season is about 3 feet; a tortuous navigable channel runs through it, with a depth of from 6 to 12 feet all the year round. In Bihār the number of these marshes is comparatively small, and they usually dry up during the cold season. The only lakes, properly so called, are found in Champāran, where a chain of them (forty-three in number), covering an area of 139 square miles, runs through the centre of the District, marking the old bed of some extensive river which has now taken another course.

The largest lake, if such it can be called, in the whole Province is the CHILKA, in the south of Orissa, a pear-shaped expanse of water, 44 miles long, with an area varying at different seasons from 344 to 450 square miles. It was once doubtless a gulf of the sea, protected on the south by a barren spur of hills and on the north by the alluvial formation deposited by the Mahānadī and other rivers. These two promontories are now joined by a bar of sand, thrown up by the winds of the south-west monsoon, which is steadily growing in breadth. Early in the nineteenth century the only opening had silted up, and an artificial mouth had to be cut, which still connects it with the sea. From December to June the water is salt; but

when the rivers which feed it are in flood, the salt water is gradually driven out, and it becomes a fresh-water lake. It is slowly filling up, and its average depth is now only 3 to 5 feet.

Islands. The process of land-formation, which is active along the shores of the Bay of Bengal, forms numerous islands, which tend to join the mainland as the intermediate channels silt up; many of them are, however, still separated from the shore by broad channels. SĀGAR ISLAND, off the mouth of the Hooghly, has for centuries been famous as the scene of an annual bathing festival, at the point where the sacred Ganges merges its waters in the Bay. DAKHIN SHĀHBĀZPUR*, at the mouth of the Meghnā, is the largest of the islands formed by the silt-laden waters of the Ganges and Brahmaputra, which have also created SANDWĪP* and HĀTIA*; the former was long notorious as a nest of the Portuguese and Arakanese pirates who harried the coasts of Bengal in the seventeenth century. KUTUBDIĀ* is an alluvial island off the Chittagong* coast which has also been formed by deposits of silt washed down from the Meghnā; the adjacent island of MAISKHĀL* has a backbone of low hills which rise abruptly from the sea.

Harbours. The coast-line of the Bay of Bengal is everywhere alluvial, and the harbours are situated up the rivers, which until recently carried all the commerce of the country. CALCUTTA, 80 miles from the mouth of the Hooghly, absorbs almost the entire trade of the Province, the value of its imports and exports in 1903–4 having been 113 crores, or 75 millions sterling, out of a total for all Bengal of rather less than 118 crores. Of the entire volume of its trade, 101 crores is with foreign ports.

CHITTAGONG*, 12 miles up the Karnaphuli river, on the east side of the Bay, is a much older port than Calcutta, but has till lately served a very limited area, the main business having been the shipment of jute carried in brigs from NĀRĀYANGANJ*. The Assam-Bengal Railway has now connected it with the Assam Valley, of which it promises to become the principal outlet. The value of its imports and exports in 1903–4 was 4 crores, or nearly 3 millions sterling. The Orissa ports include BALASORE, FALSE POINT, and PURĪ; but their trade is declining owing to the competition of the East Coast Railway, and it was valued in 1903–4 at only 83 lakhs.

Geology. As has already been stated, the greater part of the plains of Bengal is covered by alluvium. Little is known of the hills in the Chittagong Hill Tracts* and Hill Tippera*, except that they are composed of Upper Tertiary rocks; and geological

interest is confined to the Chotā Nāgpur plateau and to the portion of the Himālayas contained in Darjeeling and Sikkim.

Chotā Nāgpur.

Gneissic rocks form the nucleus of the Chotā Nāgpur plateau, being fringed on all sides by transition rocks, and freely inter-bedded with micaceous, siliceous, and hornblendic schists. The transition or sub-metamorphic rocks form groups of isolated hills in South Bihār, known as the Rājgir, Sheikhpurā, Kharakpur, and Gīdhaur hills; and similar transition rocks are found in parts of Mānbhūm, Singhbhūm, and Rānchī Districts. The transition rocks carry metalliferous lodes of gold, silver, copper, and lead, but so far none of these have proved remunerative.

The Vindhyan system.

Sandstones, shales, and limestones belonging to the Sasarām Vindhyan system occur near Rohtāsgarh in Shāhābād District.

The Gondwāna system.

The Gondwāna system contains coal-bearing strata, and is represented in the RĀJMAHĀL HILLS, the Dāmodar valley, in several of the Chotā Nāgpur Districts, and in Orissa. At the base of this system lies the Tālcher group of shale and sandstone, and above it the Karharbāri sandstones, grits, and conglomerates, with seams of coal. This is superposed by the Dāmodar series, which comprises in ascending order the Barākar group, ironstone shales, and the Rānīganj beds. The Barākars consist of conglomerates, sandstones, shales, and coal; and above them, in the Rānīganj and a few other coal-fields of the Dāmodar valley, there is found a great thickness of black or grey shales, with bands and nodules of clay ironstone. The Rānīganj beds comprise coarse and fine sandstones, with shales and coal-seams.

Laterite (a porous argillaceous rock much impregnated with iron peroxide) is well developed on the west, and is traced northward from Orissa, through Midnapore, Burdwān, and Bīrbhūm, to the flanks of the Rājmahāl Hills, where in places it is as much as 200 feet thick.

Himālayas.

Gneiss of the well-foliated type, frequently passing into mica schist, constitutes the greater portion of the Darjeeling Himālayas; but sub-metamorphic or transition rocks, known as the Dāling series, are well represented in the Tīsta and the Rangīt valleys, and in the outer hills south of Kurseong, while sandstones, conglomerates, and clays, referable to the Upper Tertiary period, occur as a narrow band fringing the base of the Himālayas. Intervening between the sub-metamorphics and the tertiaries there is a thin belt of Lower Gondwāna rocks, which includes various alternations of sandstones or quartzite, shales, slates, and beds of friable coal.

Botany.

The vegetation of Bihār and Bengal proper is 'diluvial':

i.e. it is of the kind usually found in or near places liable to inundation, and most of the species, both wild and cultivated, if not cosmopolitan, are widespread in the eastern tropics. In Bihār the older alluvium, with mainly annual turf, has the crops and weeds of Upper India. Inundated tracts near rivers are often under tamarisk. Village shrubberies, except on abandoned sites, are scanty, and the forests in the south are open and park-like. Bengal proper has perennial turf. Except in the extreme north the forests are often mixed with reedy grasses, which are sometimes replaced by savannahs. The river-beds are wide and often bare. East of the Bhāgīrathi the country is for the most part a half-aquatic rice plain, with patches of jungle on river banks, and shrubberies of semi-spontaneous species on the raised ground found near habitations and roadways. The marshes, pools, and sluggish streams are filled with water-plants. These conditions become intensified eastwards in the *bīls*, which are rice swamps in the dry season but turn into inland fresh-water seas with grassy floating islets during the rains; and still more so in the Sundarbans, where the partially-submerged muddy islands lying among interlacing brackish creeks are densely covered with Malayan shore forest and mangrove swamps. The hills on the extreme south-east are covered with forest, Indo-Chinese in character, without *sāl* (*Shorea robusta*), but with *gurjan* (*Dipterocarpus turbinatus*), unknown elsewhere.

In the north the flora gradually changes from tropical to Himālayan. The lower ranges and the *tarai* beneath are covered with dense forest. On sandy or gravelly soils, the *sāl* is the typical tree, while in marshy tracts the *gāb* (*Diospyros Embryopteris*) and other like species are found. A similar forest skirts and ascends the hills of the Chotā Nāgpur plateau. The high lands above have a vegetation which is mainly of the Central Indian type, but that on the more elevated peaks is sub-temperate. The Orissa rice plain resembles that of Bengal proper. Except in the delta of the Mahānadī, which is occupied by a mangrove swamp, it is separated from the sea by sand-dunes covered with Coromandel coast plants.

Animals. In ancient times Bengal was the home of numerous wild animals, and the elephant, rhinoceros, and wild buffalo frequented the dense jungles which have long since given place to cultivation. These animals have now disappeared from all but the most remote tracts, such as the Sundarbans and the jungles of Chittagong*, Jalpaiguri*, and the Orissa Tributary States. Practically the only large game remaining are tigers,

leopards, bears, deer, and wild hog. Tigers are comparatively scarce, but still do a great deal of damage in some Districts; leopards, deer, and wild hog are common in many parts; and bears abound wherever there are rocky hills. Owing possibly to the absence of suitable grazing, the domestic animals are of an inferior stamp. The cattle are small and weakly, and the buffaloes also are a very degenerate breed compared with the wild stock from which they are descended.

Although Bengal is situated almost entirely outside the tropical zone, its climate for about two-thirds of the year, i.e. from the middle of March to the end of October, is of the kind usually characterized as tropical: it has a high temperature and humidity, and a dry and a wet season. During the other months the temperature is much lower, the humidity is slight or moderate, and the rainfall is generally scanty. The mean temperature during the cold-season months is about 64° and during the hot season about 83°. About the beginning of March, as the sun gains a higher altitude and the days grow longer, the temperature increases rapidly. The process is aided, in the greater part of Bengal proper and Orissa, by moisture-laden southerly winds from the Bay of Bengal, which give a fairly copious rainfall when weather is disturbed[1], while in Bihār and part of North Bengal hot and dry westerly winds are prevalent in the daytime, but die away at night. From about the middle of May the south-west wind-current steadily strengthens, and, being diverted northwards by the mountain range on the western side of Burma, causes increasing rainfall in East Bengal. By the middle of June, in normal years, the monsoon has attained its full strength, and, flowing northwards, is checked and turned westwards by the Himālayan range. The moist current in its northward course is the cause of heavy rainfall near the coast and in the eastern Districts. Farther west the rainfall is more intermittent, and is due more to the cyclonic disturbances which develop at short intervals of two or three weeks in the north-west angle of the Bay and in Lower Bengal. These invariably move westwards, and in passing over the western Districts cause continuous and occasionally very heavy rainfall for several days at a time. From the beginning of September the south-west monsoon begins to fall off in strength. Cloud and rainfall are more intermittent, and are generally due to cyclonic storms, which begin to move more to the north and north-east than to the west. Tempera-

Climate.

[1] The local hot-season storms are known as 'nor'-westers.' They are generally accompanied by heavy rain and occasionally by hail.

ture increases owing to the longer intervals of bright sunshine. Before the end of October the south-west monsoon has ceased to affect the Province; and, as during the latter half of that month pressure becomes higher in Bengal than over the Bay, northerly winds begin to set in. Being land winds, they carry but a small amount of moisture, and, coming from the colder region in the north, their advent is followed by an immediate fall of temperature. Hence, during the months from November to February, fine dry weather, with an almost entire absence of cloud and rainfall, prevails in all parts of the Province. Occasional disturbances originating in, or proceeding from, the north-west of India pass from west to east over Bengal in January and February. The cyclonic winds which they cause are followed by the formation of general cloud, with irregular, but at times heavy, rainfall.

Rainfall. Excluding the Darjeeling hills, where the mountain slopes cause an annual rainfall varying from 209 inches at Buxa* to 122 inches at Darjeeling, the areas of greatest precipitation are in the south-east, where the rainfall ranges between 100 and 140 inches. In the rest of East Bengal it is between 70 and 80 inches, but again rises in North Bengal to 84 inches in Rangpur*, and to between 100 and 130 inches in the submontane plains. In the coast Districts of Central and West Bengal and in Orissa, where the effect of cyclonic storms from the Bay is chiefly felt, the annual fall is generally from 60 to 70 inches, but in places it exceeds 80 inches. In the other Districts of Bengal proper, and in the east of Bihār, where the influence of mountain ranges and cyclonic storms is less apparent, the rainfall is lighter and more uniform, being generally between 50 and 60 inches. Farther west it diminishes to 45 inches in Chotā Nāgpur and 42 inches in South Bihār. In the submontane tracts of North Bihār the annual fall varies from 50 to 55 inches.

The rainfall depends largely upon local conditions, and the fluctuations are irregular; but generally it was very deficient in 1873, in 1883 and 1884, and in 1895 and 1896. The most marked deficiency was in 1873, when the fall was only between 50 and 60 per cent. of the normal. Heavy rainfall occurred throughout the Province in the years 1876, 1886, and 1899; in other years heavy local falls occurred, e.g. in Lower Bengal in 1893 and 1900. If the variability be shown by the absolute range, that is, the difference between the heaviest and lightest rainfall on record expressed as a percentage of the normal, we find that it is greatest in the north-west of the Province and

diminishes southward and eastward. In Bihār it is 108, in Chotā Nāgpur 87, in Orissa 87, in the Central Districts 83, and in North and East Bengal about 72.

One of the most remarkable features of the rainfall of Bengal is the occasional occurrence of excessive local precipitation. Thus, on September 25, 1899, a fall of 19½ inches was registered in Darjeeling, causing numerous landslips and some loss of life. The natural effect of a heavy downpour is to cause the rivers to rise and overflow their banks, especially the rivers flowing from the Himālayas, which collect the rain-water more rapidly than do those in the plains. The most disastrous flood of this nature on record occurred in 1787, when the Tīsta suddenly burst its banks and spread itself over the whole District of RANGPUR*. It is estimated that the direct loss of life due to drowning, and the indirect mortality on account of famine and disease, amounted to one-sixth of the entire District population. In the case of non-Himālayan rivers, the liability to damage is greatest where embankments have been thrown up to hold the river to its course. The effect of these embankments is that the water, which is flowing at a higher level than the surrounding country, suddenly rushes over them instead of rising gradually, as it would do if there was no embankment. Consequently, when a breach occurs, the water pours over the lower land beyond and does immense damage. In 1885, and again in 1890, when the great Lalitākuri embankment of the Bhāgīrathi gave way, the flood-water swept right across MURSHIDĀBĀD and NADIĀ Districts for a distance of more than 50 miles. Floods.

The Province suffers even more from cyclones, especially on the sea-coast of East Bengal, where they often cause an inundation of salt water. The most striking features in these cyclones are the great barometric depression in the centre and the magnitude of the storm area. These two causes produce a large accumulation of water at and near the centre, which progresses with the storm and gives rise to a destructive storm-wave when the centre reaches a gradually shelving coast. This conjunction of adverse circumstances occurs more or less regularly at intervals of ten or twelve years. The worst of the recent calamities of this nature was in 1876, when a great part of BACKERGUNGE* and the adjoining Districts was submerged to a depth of from 10 to 45 feet. Nearly 74,000 persons were drowned in Backergunge* alone, and the cholera epidemic which followed carried off close on 50,000 more. On October 24, 1897, CHITTAGONG DISTRICT* was devastated by a similar but more local catastrophe; 14,000 persons were drowned and Cyclones.

nearly three times that number died of the diseases that followed. Tidal waves have more than once caused great damage to the shipping in the HOOGHLY; and although Calcutta itself is so far from the sea, it is by no means certain that it is beyond the reach of a bore of exceptional height and momentum. Great damage is occasionally caused by cyclones on the sea-coast of Orissa, and in 1885 a considerable area in Cuttack and Balasore was inundated and large numbers of human beings and cattle were drowned.

Earth-quakes.

In the earlier part of this article reference has been made to the probability that in the distant past the surface of Bengal had been greatly affected by changes of elevation. Small earth tremors are still of constant occurrence, and on at least seven occasions in the past 150 years—in 1762, 1810, 1829, 1842, 1866, 1885, and 1897—earthquakes of considerable severity have taken place. By far the worst of these was that of June 12, 1897. Its focus is believed to have been somewhere near Cherrapunji in the Assam range, but it travelled with such rapidity that it reached the western extremity of Bengal in six minutes or even less. The violence of the shock in this Province was greatest in the Districts bordering on Assam, and it was comparatively slight west of the Bhāgīrathi. In North and East Bengal most of the older masonry buildings fell or were severely damaged, and even in Central Bengal a considerable proportion of the larger buildings suffered. Some of the older ones collapsed altogether and many others were rendered unfit for occupation. In the alluvial tracts near Assam numerous long cracks and fissures opened in the ground, and circular holes were formed through which water and sand were ejected; wells were filled with sand, and many small river-channels were entirely blocked by the upheaval of their beds. The railways in the same localities were rendered impassable owing to the damage done to bridges and to fissures in the embankments, which in some places subsided altogether. The shock fortunately occurred in the daytime and the mortality was thus small; had it occurred at night, the number killed must have been very large. The previous earthquake (that of 1885) was felt chiefly in the same parts of Bengal, but it was more local; its area of maximum intensity was in the neighbourhood of Bogra*.

History. Prehistoric move-

The people of Bengal appear from their physical type to belong to three distinct stocks—Dravidian, Mongoloid, and Aryan. Except on the northern and eastern outskirts, the

there is a strong Mongoloid element, while in Bihār the Dravidian type has been modified by an admixture of Aryan blood. Philologists hold that the earliest recognizable linguistic formation in India is the Dravidian. How the people who brought these languages with them entered India is a problem regarding which we can only speculate. They may have come from the north-west by way of Arabia, where (if so) the subsequent intrusion of a Semitic race has since obliterated all trace of them; or they may, more probably, have come from the south in the prehistoric time when it is thought that India was connected with Madagascar by a land area, known to naturalists as Lemuria, which subsequently broke up and sank beneath the sea, leaving as its only trace several huge shoals and a chain of islands, including the Seychelles, Chagos Islands, the Laccadives and Maldives. Dravidian languages still survive, not only in Southern India, where Tamil and Telugu are its leading representatives, but also in the Chotā Nāgpur plateau, where they are spoken by the Oraon, Māle, and other tribes. Bengal was next overrun, as far as Bihār and Chotā Nāgpur, by tribes speaking languages of the family known as Mon-Anam or Mon-Khmer, which is still extant in Pegu, Cambodia, and Cochin China. These tribes probably came from the north-east by way of the Pātkai pass and the valley of the Brahmaputra. The only dialect of this family which survives in Assam is the Khāsi; in Bengal not a single representative is left, but indications of its former existence are perhaps disclosed by the Mundā family of languages[1]. These invaders from the north-east were followed by fresh hordes from the same direction, whose speech was of the type known as Tibeto-Burman, of which Tibetan and Burmese represent the two standards to which the other and ruder dialects tend to conform, and which is believed to have had its origin in Eastern Tibet or in adjacent territory now Chinese. The earliest of these later incomers were probably the ancestors of the Pods of Central and the Chandāls of East Bengal, who have long since abandoned their characteristic dialects, while the latest were the Kochs, Mechs, and Gāros, many of whom still retain their tribal forms of speech. The Aryan invasion from the north-west, which took place while the incursions of Mongoloid tribes from the north-east were still in progress, was the last notable movement so far as this Province is con-

[1] There are traces of an alliance with the Mon-speaking races in the [illegible] of the Mundā-speaking tribes and in the monoliths

cerned. Bihār was the seat of rule of Aryan princes, but in Bengal proper the stream of immigration was comparatively thin and attenuated. As the Aryan invasion spread, its character changed, and arms gave way to arts. Aryan priests, adventurers, merchants, and artificers found their way over and beyond Bengal, and by their superior intelligence and culture gradually imposed their religion and language on people whom they had never conquered, and sometimes even snatched the crown from the indigenous ruling families.

Bihār. The Mauryas.

The province of Bihār is known to us from very early times. The ancient kingdom of Magadha comprised the country now included in the Districts of Patna, Gayā, and Shāhābād. Its capital was at Rājāgriha (Rājgir), some 30 miles north-east of Gayā. North of the Ganges was Videha or Mithilā, which was very early a great seat of Sanskrit learning, and included the modern Districts of Darbhangā, Champāran, and North Muzaffarpur; the south of the latter District constituted the small kingdom of Vaisalī. To the east lay Anga, including Monghyr, Bhāgalpur, and Purnea, as far as the Mahānandā river. There are constant references to these countries in the Mahābhārata. Magadha is even mentioned under the name of Kikotā in the Rig Veda, and Mithilā in the *Satyapatha Brāhmana*. It was in Magadha that Buddha developed his religion, and that Mahāvīra founded the cognate creed of the Jains. Soon after Buddha's death, a Sūdra, named Nanda, wrested the throne from the Kshattriyas and founded a new dynasty. He made his capital at the confluence of the Son and the Ganges near the modern Patna. Chandragupta, a contemporary of Alexander the Great, on the death of that monarch, organized a powerful force with which he expelled the Macedonians. He then turned his arms against Dhema Nanda, king of Magadha, and having defeated and slain him, seated himself on the vacant throne of Pātaliputra and gradually extended his rule over the greater part of Northern India. He successfully resisted Seleucus, who had succeeded to the eastern portion of Alexander's empire. When peace was made, all the Indian provinces of Alexander, and probably also the Kābul valley, were ceded to Chandragupta, and a matrimonial alliance was effected between the two royal houses. Megasthenes was deputed by Seleucus as his ambassador at Pātaliputra, and it was here that he compiled his work on India. The government of the Indian monarch is described as strong and well organized, and as established in a magnificent fortified city. The standing army numbered 60,000 infantry, 30,000 cavalry,

8,000 elephants, and a multitude of chariots. On active service the army is said to have attained the huge total of 600,000 men. In 272 B.C. Chandragupta's grandson, Asoka, ascended the throne, and nine years later he added Kalinga to his empire. His experiences during this campaign impressed him so deeply with the horrors of warfare that he thenceforth turned his thoughts to religion and became the great champion of Buddhism. He sent his missionaries to every known country and himself took the vows of a Buddhist monk.

In the fourth century A.D. the Gupta dynasty rose to power. Their capital was also at Patna, and their supremacy was acknowledged by the kings of the different countries now included in Bengal. They were Hindus by religion. In Hiuen Tsiang's time (seventh century) North Bihār was divided into Vriji to the north and Vaisalī to the south, both countries stretching eastwards to the Mahānandā. South of the Ganges were Hiranya Parvana (Monghyr) and Champā (south Bhāgalpur, the Santāl Parganas, and Bīrbhūm). The rulers of both these kingdoms were probably Khetauris of Māl origin. In the ninth century the Buddhist dynasty founded by Gopāl included Bihār in its dominions. The last of this line was defeated in 1197 by Muhammad-i-Bakhtyār Khiljī, whose soldiers destroyed the capital at Odantapuri and massacred the Buddhist monks assembled there. The Guptas.

Very little is known of Bengal proper until the rise of the Pāl dynasty. At the time of the Mahābhārata, North and East Bengal formed, with Assam, the powerful kingdom of PRĀGJYOTISHA, or Kāmarūpa as it was subsequently called, and its ruler, Bhagadatta, was one of the great chiefs who fought in the battle of Kurukshetra. This kingdom stretched westwards as far as the Karatoyā river. It was ruled by a succession of princes of Mongoloid stock, and was still flourishing when visited by Hiuen Tsiang in the seventh century. South-west of Prāgjyotisha, between the Karatoyā and the Mahānandā, lay PUNDRA or Paundravardhana, the country of the Poda, which, according to Cunningham, has given its name to the modern Pābna*; its capital may have been at MAHĀSTHĀN* on the right bank of the old Karatoyā river, or at Pandua*, near Mālda*. This kingdom was in existence in the third century B.C., and Asoka's brother found shelter there in the guise of a Buddhist monk. It was still flourishing when Hiuen Tsiang travelled in India; and it is mentioned as a powerful kingdom in the eighth century A.D., and as a place of pilgrimage in the eleventh century. Bengal proper.

East of the Bhāgīrathi and south of Pundra lay BANGA or Samatata. Its people are described in the *Raghubansa* as possessing many boats, and they are clearly the ancestors of the Chandāls who at the present day inhabit this part of the country. On the west of the Bhāgīrathi was KARNA SUVARNA (Burdwān, Bānkurā, Murshidābād, and Hooghly), whose king, Sasānka or Narendra, the last of the Guptas, was a fanatical worshipper of Siva, and invaded Magadha and cut down the sacred *bodhi*-tree early in the seventh century. The capital was probably near RĀNGĀMĀTI, in Murshidābād District. Lastly, there was the kingdom of TĀMRALIPTA, or Suhmā, comprising what now constitutes the Districts of Midnapore and Howrah. The rulers of this country seem to have been Kaibarttas.

The Pāls.

During the ninth century, the Pāl dynasty rose to power in the country formerly known as Anga, and gradually extended their sway over the whole of Bihār and North Bengal. Traces of their rule are very common in the south of Dinājpur*, where the memory of Mahīpāl, in particular, is preserved both in the traditions of the people and in numerous names of places. Like the kings of Pundra, they were Buddhists, but they were tolerant towards Hinduism. They were driven from Bengal proper, about the middle of the eleventh century, by a king named Vijaya Sen of the Sen family, but they continued to rule for some time longer in Bihār.

The Sens.

The Sens rose to power in East and deltaic Bengal towards the end of the tenth century, and eventually included within their dominions the whole of Bengal proper from the Mahānandā and the Bhāgīrathi on the west to the Karatoyā and the old Brahmaputra on the east. The Sens were Hindus, and during their rule Buddhism was actively discouraged. The best remembered king of this dynasty is Ballāl Sen, who reorganized the caste system and introduced Kulinism among the Brāhmans, Baidyas, and Kāyasths. To him is attributed the division of Bengal into four parts: namely, RĀRH, west of the Bhāgīrathi, corresponding roughly to Karna Suvarna; BĀRENDRA, between the Mahānandā and the Karatoyā, corresponding to Pundra; BĀGRI (Bāgdi) or South Bengal; and Banga or East Bengal. He conquered and annexed Mithilā, where the era inaugurated at the accession of his son, Lakshman Sen, is still current.[1] The latter was still holding his court at Nabadwīp at the time of Muhammad-i-Bakhtyār's[2] invasion at the end of the twelfth century. He himself fled to Orissa; but his descendants exercised a precarious sovereignty in East Bengal, with their

capital at BIKRAMPUR* in Dacca District, for a further 120 years.

At the dawn of history Orissa formed part of the powerful kingdom of KALINGA, which stretched from the mouths of the Ganges to those of the Godāvari. It was conquered by Asoka, but by 150 B.C. it had again passed to the Kalinga kings. Jainism was then beginning to spread in the land; but about the second century A.D. it was succeeded, according to Buddhist tradition, by the latter creed, which was still flourishing in 640. Subsequently the power of the Kalinga dynasty declined, and Orissa seems to have become independent. In 610, however, an inscription of Sasānka, king of Magadha, claims it as a part of the dominions of that monarch, and in 640 it was conquered by Harshavardhana of Kanauj. In the tenth and eleventh centuries, Orissa is said to have been under the dynasty of Kesari kings, to whose rule are ascribed the Saiva temples at BHUBANESWAR and most of the ruins in the Alti hills; but the existence of such a dynasty is uncertain[1]. Then followed the dynasty founded by Chora Gangā of Kalinganagar. These kings were of the Vaishnava faith; they built the famous temple of Jagannāth at PURĪ and the Black Pagoda of KONĀRAK. There were frequent wars with the Muhammadans, and about 1361 the emperor Fīroz Shāh conducted an inroad into Orissa in person. In 1434 Kapileswar Deva, of the Solar line, usurped the throne. He extended his dominions to the south, where Muhammadan inroads had subverted the old order of things, as far as the Penner river; but his successors were gradually shorn of these additions by the Musalmān rulers of Golconda. In the north also the onset of the Muhammadans became more and more insistent; and at last in 1568, after a period of civil war, the last Hindu king, a usurper of the name of Mukund Deo, was overthrown by Kāla Pāhār, the general of Sulaimān Kararānī. *Orissa.*

Muhammad-i-Bakhtyār Khiljī, a Turkī free-lance, who acknowledged the suzerainty of Muhammad Ghorī, conquered Bihār about 1197. Two years later he advanced with a small troop of horsemen into Bengal, and took possession of Gaur* and Nabadwīp without a struggle. He unsuccessfully invaded Tibet, and in his retreat lost the greater part of his army at the hands of the Mechs east of the Karatoyā. The greater part of *Muhammadan period. Conquest of Bengal and Bihār.*

[1] The account of these kings given in the *Mādala Panjikā*, or palm-leaf records of the Temple of Jagannāth, has been shown to be wholly unreliable, but several inscriptions have recently come to light which are thought by some to prove that the dynasty really existed.

Bengal gradually came under the control of the Muhammadan governors, who ruled at Gaur or Lakhnautī, in loose subjection to the Delhi emperors.

Mughīs-ud-dīn Tughril, the sixteenth governor, who had originally been a favourite slave of the emperor Balban, seeing that Balban was preoccupied with the advance of the Mongols from the west, rebelled and defeated in turn the imperial armies that were sent against him. Balban himself then took the field (in 1282), and having surprised and slain Tughril and put a great number of his followers to the sword, installed his son, Nāsir-ud-dīn Bughrā, as governor. In 1338 Fakhr-ud-dīn Mubārak revolted against Muhammad bin Tughlak, and declared himself independent.

Rulers of Bihār.

Eight years before this date South Bihār had been separated from Bengal and annexed to Delhi. North Bihār apparently belonged to Bengal for some time longer, as the Bengal king, Hājī Shams-ud-dīn Ilyās, is reputed to have been the founder of Hājīpur. In 1397 the whole of Bihār became part of the kingdom of Jaunpur; but a century later it was again taken possession of by the emperors of Delhi, who continued to hold it, except for a short time when the Bengal king, Alā-ud-dīn Husain, and his son, Nāsir-ud-dīn Nusrat, obtained temporary possession of the country north of the Ganges. Under the Mughals the capital of the country was the town of BIHĀR in the south of Patna District, and from this town the whole province took its name. A considerable part of North Bihār was under the rule of a line of Brāhman kings, who were generally tributary to the Muhammadans, from the middle of the fourteenth to the middle of the sixteenth century. Another Hindu dynasty, possibly connected with them, ruled during the fifteenth century in Champāran and Gorakhpur.

Independent kings of Bengal.

From 1338 till 1539, when it fell into the hands of Sher Shāh, Bengal was ruled by various lines of independent kings, mostly of Pathān or Turkī origin. Some, however, were Abyssinian eunuchs, and one, Rājā Kāns or Ganesh of Dinājpur*, was a Hindu; the latter's son, who succeeded him, became a convert to Islam. The exact area of their dominions varied. Sometimes they were contracted by the encroachments of the kings of Kamātāpur, Arakan, and Tippera*, while at others they were extended; notably by Alā-ud-dīn Husain, who in 1498 conquered the kingdom of Kamātāpur in the north-east and overran Orissa and Bihār.

After Bābar had overthrown the Afghān dynasty at Delhi, he turned his arms against the Afghan rulers of Bihār. These

were twice defeated, in 1528 and 1529, and sought refuge with their compatriots in Bengal, who in their turn were worsted in a battle on the banks of the Gogra. After Bābar's death the Bihār Afghāns rallied under a brother of the late Lodī Sultān of Delhi, but were decisively vanquished by Humāyūn in 1531 in an engagement near Lucknow. Meanwhile Sher Shāh, a descendant of the royal house of Sūri kings of Ghor, who rose from a humble executive office to the rank of prime minister of the Afghān governors, or kings of Bihār, as they called themselves in Bābar's time, had established himself at Chunār. Humāyūn did not trouble to reduce him, but contented himself with a verbal submission; and the result was that during the next six years, while the emperor was engaged elsewhere, Sher Shāh became supreme on the borders of Bengal. In 1537 Humāyūn marched against him, and after a siege of six months reduced his fortress of Chunār. At the same time Sher Shāh was himself engaged in the conquest of Bengal. He effected this; but when Humāyūn, after taking Chunār, marched into Bengal, Sher Shāh shut himself up in ROHTĀSGARH, which he had captured by a stratagem, and made no effort to oppose his advance. Humāyūn spent six months in dissipation in Bengal; but then, finding that Sher Shāh had cut off his communications and that his brother at Delhi would not come to his assistance, he retraced his steps and was met and defeated near BUXAR. Sher Shāh then ousted the Mughal governor who had been left at Gaur, and proclaimed himself king of Bengal and Bihār. A year later he again defeated Humāyūn at Kanauj and became emperor of Delhi. He proved a strong and capable ruler; during his reign the country enjoyed peace and prosperity, and the people were secure from oppression and bribery. He died in 1545. Ten years later Humāyūn recovered the throne of Delhi from his nephew, but the Afghān governors of Bengal remained unconquered. Rāju, better known as Kāla Pāhār, the general of Sulaimān Kararānī, who acknowledged the supremacy of Akbar, but was practically independent, conquered Orissa in 1568. Sulaimān's son Daud at first made his submission to Akbar. He subsequently rebelled, but was defeated; and Bengal was definitely annexed to the Mughal empire, to which it continued to belong practically till the disintegration of the empire after the death of Aurangzeb, and nominally until it passed into the possession of the East India Company.

During the earlier years of Mughal rule, the governors were

Bengal under the Mughals.

called upon to meet repeated risings of the previously dominant Afghāns, who, when defeated, took refuge in Orissa. Rājā Mān Singh inflicted a crushing defeat on them, but they were not finally subdued until 1611 during the viceroyalty of Islām Khān. At this time the incursions of Maghs from Arakan, and Portuguese pirates from the islands at the mouth of the Meghnā, had become so persistent that special steps had to be taken to resist them. With this object Islām Khān removed the capital, which had usually been at Gaur or the neighbouring towns of Pandua and Rājmahāl, to DACCA*, where it remained, except for a short interval, until Murshid Kulī Khān made Murshidābād his head-quarters a hundred years later. When Shāh Jahān rebelled against his father, the emperor Jahāngir, in 1621, and, after being defeated, fled to the Deccan, where he again suffered defeat, he determined to seize upon Bengal. He took Orissa by surprise, and subsequently, with the aid of the Afghāns, overthrew the governor and took possession of the whole Province. He held it for two years, but was then defeated and made his submission. On the death of Jahāngīr he became emperor, and in 1639 appointed his son Sultān Shujā to be governor of Bengal. The latter subsequently fought against his brother Aurangzeb, but was defeated by Mīr Jumla and fled to Arakan, where he died a miserable death. Mīr Jumla was rewarded with the post of governor, which he filled with conspicuous ability. The most important event of his rule was his invasion of Cooch Behār and Assam in 1661 and 1662. He overran both countries; but the rigours of a rainy season in Upper Assam spread death and disease among his troops, and he was compelled to return, only to die of dysentery contracted during the campaign, shortly after his arrival at Dacca*.

When Aurangzeb died, the governor of Bengal was Murshid Kulī Khān, a Brāhman convert to Islām. He possessed great administrative ability; and, profiting by the dissensions at Delhi, he succeeded in making himself practically independent. From that time forward the supremacy of the Mughal emperors was little more than nominal.

North and South-east Bengal.

In North Bengal various Mongoloid tribes rose in turn to power. When Alā-ud-dīn Husain overran the country at the end of the fifteenth century, the ruling monarch was Nīlāmbar, the third of a line of Khen chieftains. Shortly afterwards Biswa Singh, the progenitor of the Koch kings, founded a new dynasty, whose rule extended from the Karatoyā to Central Assam; and it was not until 1661 that the country as far as

Goālpāra was permanently acquired by Mīr Jumla. Previous to the seventeenth century Chittagong* was in the hands of the Tipperas or of the Maghs, and it was only after the transfer of the capital to Dacca* that this tract was gradually annexed.

Orissa. Orissa (including Midnapore), which had been wrested from the Hindu kings by Kāla Pāhār, remained in the possession of the Afghāns until 1592, when Mān Singh annexed it. It was placed under separate governors, but Midnapore and Balasore were subsequently transferred to Bengal. In 1751 Alī Vardī Khān ceded the province to the Bhonslas of Nāgpur, in whose possession it remained until its conquest by the British in 1803. The Marāthās made no attempt to establish any civil administration, and their rule was confined to a periodic harrying of the country by their cavalry, who extorted whatever they could from the people.

Chotā Nāgpur and Orissa Tributary States. Chotā Nāgpur, including the Tributary States of Chotā Nāgpur and Orissa, is called Jhārkand in the *Akbarnāma*. The country was ruled by chiefs of various aboriginal tribes, the Cheros being predominant in Palāmau, the Mundās in Rānchī, and the Bhuiyās and Gonds in the Orissa States. The south of Chotā Nāgpur proper was annexed by Akbar, and Palāmau by Shah Jahān. The remoter chiefs appear to have remained independent until their subjugation by the Marāthās towards the end of the eighteenth century.

Character of Muhammadan rule in Bengal. During Muhammadan rule the authority of the central government varied with the character of the king or governor for the time being. If he was energetic and masterful, the whole country accepted his authority; but if he was weak and indolent, the local rulers became practically independent. At all times their internal administration was but little interfered with, so long as they paid a regular tribute and furnished troops or supplies for troops when required to do so.

Some of the local potentates were Hindu Rājās and others were Muhammadan free-lances, who carved out kingdoms for themselves, and some, again, were agents of the central authority, who gradually secured a large measure of independence. The founder of the Burdwān Rāj family was a Punjābi Khattrī, who had received an appointment under the Faujdār of Burdwān, and whose descendants acquired property and power by degrees, until, in 1753, one of them received from the emperor Ahmad Shāh a *farmān* recognizing his right to the Burdwān Rāj. The Rājās of Bishnupur or Mallābhūm were pseudo-Rājputs of aboriginal origin, who were sometimes the enemies, sometimes the allies, and sometimes the tribu-

taries of the governors, but were never completely subjugated. About the middle of the fifteenth century a Muhammadan adventurer, named Khān Jahān, or Khānja Alī, obtained a *jāgīr* from the king of Gaur, and made extensive clearances in the Sundarbans, where he appears to have exercised all the rights of sovereignty until his death in 1459. A hundred years later, when Daud, the last king of Bengal, rebelled against the emperor, one of his Hindu councillors obtained a Rāj in the Sundarbans, the capital of which, near the Kālīganj police station in Khulnā, has given its name to the modern District of JESSORE. His son, Pratāpāditya, was one of the twelve chiefs or Bhuiyās who held the south and east of Bengal nominally as vassals of the emperor, but who were practically independent, and were frequently at war with each other. He rebelled against the emperor, and, after some minor successes, was defeated and taken prisoner by Rājā Mān Singh, the leader of Akbar's armies in Bengal from 1589 to 1606. Amongst the other Bhuiyās who were ruling at the time of Ralph Fitch's travels (towards the end of the sixteenth century), may be mentioned Paramānanda Rai, who ruled over a small kingdom at Chandradwīp in the south-east of the modern District of Backergunge*, and Isa Khān, of SONĀRGAON* in Dacca*, who was 'chief of all the other kings' and powerful enough to make war on the Koch kings of Kāmarūpa.

The following is a chronological table of the Muhammadan rulers of Bengal:—

Early Muhammadan Governors of Bengal

	A.D.		A.D.
Muhammad-i-Bakhtyār Khiljī	1202	Nāsir-ud-dīn Bughrā (son of Balban)	1282
Izz-ud-dīn Muhammad Shīrān	1205	Rukn-ud-dīn Kaikaus (son of Bughrā)	1291
Alā-ud-dīn Mardān	1208	Shams-ud-dīn Fīroz (son of Bughrā)	1302
Ghiyās-ud-dīn Iwaz	1211	Shahāb-ud-dīn Bughrā (son of Bughrā, W. Bengal)	1318
Nāsir-ud-dīn Mahmūd, son of emperor Altamsh	1226	Ghiyās-ud-dīn Bahādur (son of Fīroz, E. Bengal)	1310
Alā-ud-dīn Jānī	1229	Ghiyās-ud-dīn Bahādur (all Bengal)	1319
Saif-ud-dīn Aibak	1229	Nāsir-ud-dīn (son of Fīroz, Lakhnautī)	1323–5
Izz-ud-dīn Tughril Tughān	1233	Bahādur restored with Bahrām (E. Bengal)	1324–30
Kamar-ud-dīn Tamar	1244	Bahrām	1330–8
Ikhtiyār-ud-dīn Yūzbak	1246	Kadar Khān (Lakhnautī)	1325–39
Jalāl-ud-dīn Masūd	1258	Izz-ud-dīn (Sātgaon)	1323–39
Izz-ud-dīn Balban (afterwards emperor)	1258		
Muhammad Arslān Tātār Khān	1260		
Sher Khān			
Amīn Khān			
Mughīs-ud-dīn Tughril	1277		

Independent Muhammadan Kings of Bengal

	A.D.
Fakhr-ud-dīn Mubārak (E. Bengal)	1338–49
Ikhtiyār-ud-dīn Ghāzī (E. Bengal)	1349–52
Alā ud-dīn Alī (W. Bengal)	1339–45
Shams-ud-dīn Ilyās (in Gaur)	1345
Sikandar I	1358
Ghiyās-ud-dīn Azam (in the East)	1389
Saif-ud-dīn Hamza	1396
Shams-ud-dīn	1406
Shahāb-ud-dīn Bāyazīd Shāh with Rājā Kāns (Ganesh)	1409
Jalāl-ud-dīn Muhammad	1414
Shams-ud-dīn Ahmad	1431
Nāsir-ud-dīn Mahmūd	1442
Rukn-ud-dīn Bārbak	1459
Shams-ud-dīn Yūsuf	1474
Sikandar II	1481
Jalāl-ud-dīn Fateh	1481
Shāhzāda Bārbak Habshī	1486
Saif-ud-dīn Fīroz	1486
Nāsir-ud-dīn Mahmūd	1489
Shams-ud-dīn Muzaffar	1490
Alā-ud-dīn Husain	1493
Nāsir-ud-dīn Nusrat	1523
Alā-ud-dīn Fīroz	1532
Ghiyās-ud-dīn Mahmūd Shāh (the last substantial King of Bengal)	1532
Conquest by Humāyūn	1537
Sher Shāh (Sultān of Delhi)	1539
Islām Shāh ditto	1545
Shams-ud-dīn Muhammad Sūr	1552
Bahādur	1554
Ghiyās-ud-dīn Jalāl	1560
Sulaimān Kararānī	1563
Bāyazīd	1572
Daud	1573

Governors of Bengal under the Delhi Emperors

	A.D.
Khān Jahān	1576
Muzaffar Khān	1579
Rājā Todar Mal	1580
Khān Azīm	1582
Shāhbāz Khān	1584
Rājā Mān Singh	1589
Kutb-ud-dīn Kokaltāsh	1606
Jahāngīr Kulī	1607
Shaikh Islām Khān	1608
Kāsim Khān	1613
Ibrāhīm Khān I	1618
Shāh Jahān	1622
Khānazād Khān	1625
Mukarram Khān	1626
Fidai Khān	1627
Kāsim Khān Jābūni	1628
Azīm Khān	1632
Islām Khān Mashhadi	1637
Sultān Shujā	1639
Mīr Jumla	1660
Shaista Khān	1664
Fidai Khān	1677
Sultān Muhammad Azīm	1678
Shaista Khān (again)	1680
Ibrāhīm Khān II	1689
Azīm-ush-shān	1697
Murshid Kulī Khān	1704
Shujā-ud-dīn Khān	1727
Sarfarāz Khān	1739
Alī Vardi Khān	1740
Sirāj-ud-daula	1756
Mīr Jafar	1757
Mīr Kāsim Alī Khān	1760
Mīr Jafar (again)	1763
Najīm-ud-daula	1765

British rule.

The history of Bengal under the British is part of the general history of India. The earliest European traders in Bengal were the Portuguese, who began to visit CHITTAGONG* and SĀTGAON near HOOGHLY about the year 1530. They were well established at Hooghly when Ralph Fitch travelled through the country in 1586. Factors of the East India Company, coming

from Surat by way of Agra, first visited Patna in 1620. About 1625 the Dutch settled at CHINSURA and at Pipli in the north of Orissa, and about 1642 the first factory of the East India Company in this Province was established near BALASORE. In 1650 a factory was started at Hooghly, where trade was greatly facilitated by a *farmān* obtained in the following year from the emperor Shāh Jahān by a surgeon of the Company named Boughton, who had succeeded in curing a lady of the royal family. Shortly after this factories were started at Cossimbāzār and Patna, and a few years later a fifth was opened at Dacca*. These settlements in Bengal were at first worked in subordination to Fort St. George at Madras, but in 1681 they were constituted an independent charge. The sole object of the Company at this time was trade, the articles most in demand being saltpetre, silks, and muslins. Their dealings were hampered by constant disputes with the Nawāb and his local officials, who tried to exact what they could; and on more than one occasion hostilities broke out, in which, on the whole, the Company's servants held their own. Sūtānuti, the northern part of modern Calcutta, was occupied as his head-quarters by Job Charnock, temporarily in 1686, and permanently in 1690, and by 1710 the old Fort William had been constructed. In 1698 the Company was permitted to purchase, for Rs. 1,300, the three villages of Calcutta, Sūtānuti, and Gobindpur, subject to a revenue of Rs. 1,195; and in 1717 the purchase was sanctioned of thirty-eight more villages, paying a revenue of Rs. 8,121.

In June, 1756, Sirāj-ud-daula, the Nawāb of Bengal, finding that the English, in fear of an attack by the French, who had established themselves at CHANDERNAGORE in 1688, were strengthening the fortifications of Calcutta without his permission, marched against the place and took it. It was then that occurred the massacre of the Black Hole. The European prisoners, 146 in number, were confined in a small room, only 18 feet by 14 feet, and next morning all but 23 were found to have died of suffocation. A force was immediately dispatched from Madras under Clive, who advanced in 1757 towards Murshidābād. The Nawāb, with a large army, met him at PLASSEY, but was utterly defeated; Mīr Jafar was appointed Nawāb, but was soon afterwards ousted in favour of his son-in-law, Mīr Kāsim. The latter, exasperated by the exactions of the servants of the Company and their interference with the transit duties, engaged in hostilities, but was twice defeated. He fled to Oudh, after causing a number of English

prisoners at Patna to be put to death. The Nawāb of Oudh espoused his cause; but the combined armies were defeated by Major Munro at BUXAR in 1764, and the Dīwāni or civil authority over Bengal, Bihār, and Orissa was conferred in perpetuity on the East India Company by the emperor Shāh Alam[1]. The result was that the centre of British power was transferred from Madras to Calcutta, and that from 1774 to 1854 the Governorship of Bengal was merged in the Governor-Generalship of the Company's territories in India. The French Settlement at Chandernagore was captured at the same time, but was subsequently restored, and the place is still a French possession administered in subordination to the French governor of Pondicherry.

In 1765 was inaugurated Clive's celebrated 'dual system,' by which it was thought that the Company would get all the benefit from its new possessions, without the trouble and responsibility involved in their actual administration. Mīr Jafar had been reinstated as Nawāb; but he was required to execute an agreement by which the Company received the revenues and undertook the military defence of the country, while he carried on the civil administration in return for a fixed stipend. The revenue was collected by Naibs or deputy-Nawābs. This dual government was found most unsatisfactory; the people were subjected to great oppression, while the collections rapidly declined. In 1769-70 there was a terrible famine in which a third of the population are said to have perished, and which is believed to have been aggravated by the misgovernment of the agents of the Nawāb and the ignorance of local conditions on the part of British officials. After several abortive experiments an entirely new system was introduced by Warren Hastings. European Collectors were appointed in each of the fourteen Districts into which Bengal was then divided, and the collection of the revenue was placed in their hands. They were also placed over the Dīwāni Adālat or civil courts, where they were assisted by the advice of experienced native officials. The Faujdāri Adālat or criminal courts were still presided over by Muhammadan officials, but the Collector was required to see that all witnesses were duly examined and that the decisions were fair and impartial. Appeals from the local civil and criminal courts were allowed to two superior courts in Calcutta. Subsequently the European Collectors were replaced by native *āmils*, and the superintendence of the collection of the revenue

[1] Orissa was at the time in the possession of the Marāthās, and it was not until 1803 that it was conquered and annexed by Lord Wellesley.

was vested in six Provincial Councils, at Calcutta, Burdwān, Dacca*, Murshidābād, Dinājpur*, and Patna. The *āmils* administered civil justice, while the criminal courts were presided over by native officers called *faujdārs*. Further changes were made; but when Lord Cornwallis became Governor-General in 1786, the original system of Warren Hastings was reverted to, with this difference that the Collector was himself Civil Judge and Magistrate. For some years longer serious criminal cases were required to be referred for trial to the Deputy of the Nawāb, but in 1793 four courts of circuit, superintended by covenanted servants of the Company, were established to try cases not cognizable by the magistrates. Separate Judges were next appointed in each District, with native subordinates to deal with petty civil cases.

Various further improvements and alterations were from time to time effected, notably in 1829, when Commissioners of Revenue and Circuit were appointed, but it is unnecessary to discuss them in detail. The system of administration at the present day is the direct outcome by a gradual process of evolution of the arrangements made by Lord Cornwallis.

In 1836 the now overgrown Bengal Presidency[1] was divided into two parts—Fort William in Bengal, and Agra—and a separate Lieutenant-Governor, subordinate to the Governor-General, was appointed for the latter. The former, which included the whole of what now constitutes the Province of Bengal with the territories comprised in the Province of Eastern Bengal and Assam[2], remained under the direct control of the Governor-General, who was authorized, when absent from the Province, to nominate a Deputy-Governor from among the ordinary Members of his Council, to carry on the government. This arrangement continued until 1854, when the Governor-General was relieved of the direct administration of Bengal by the appointment of a permanent Lieutenant-Governor. The change was much needed, as the Governor-General being frequently absent, and his Deputy-Governor, who was usually the senior ordinary Member of Council for the time being, constantly changing, the element of personal continuity at the head of the administration was sadly lacking.

[1] The varying meaning of the term has already been explained on p. 3.

[2] Sylhet, Goālpāra, and the Gāro Hills formed part of Bengal from the beginning of British rule; the Assam Valley proper was acquired from Burma in 1826, and the other tracts on different dates which need not here be detailed.

The names of the successive Lieutenant-Governors of Bengal are noted below[1]:—

Sir Frederick Halliday	1854	Sir Steuart Bayley	1887
Sir John Peter Grant	1859	Sir Charles Elliot	1890
Sir Cecil Beadon	1862	Sir Alexander Mackenzie	1895
Sir William Grey	1867	Sir John Woodburn	1898
Sir George Campbell	1871	Sir James Bourdillon	1902
Sir Richard Temple	1874	Sir Andrew Fraser	1903
Sir Ashley Eden	1877	Sir Edward Baker	1908
Sir Rivers Thompson	1882		

The events of the Sepoy Revolt took place chiefly in Upper India, and the rising in Bengal was comparatively unimportant. But the story of the greased cartridges had its origin at Barrackpore, and both there and at Berhampore, Dinapore, and Dacca the sepoys mutinied. They were, however, quickly suppressed; and it was only in Bihār that events for a time took a serious turn, especially in Shāhābād, where the defence of the billiard-room at Arrah, by a handful of civilians and Sikhs, against the onslaught of the sepoy mutineers from Dinapore and the levies of a local Rājput *zamīndār*, forms one of the most splendid pieces of gallantry in the history of the British arms.

In 1864 repeated raids by the Bhutānese, and the barbarous outrages committed on the British envoy sent to negotiate with the Bhutān government, led to a campaign in which the Bhutānese were worsted and the British troops took possession of the Duārs, i.e. the passes into the hills and the adjoining lowlands; and in 1865 a treaty was concluded by which those territories were ceded to the British Government in return for a fixed annual payment. In 1874 the Districts constituting the Province of Assam were separated from Bengal and placed under a Chief Commissioner. In 1888, the Tibetans having advanced into Sikkim, an expedition was sent against them. They were defeated with ease, the campaign ending with their complete expulsion from Sikkim, and that State was brought into closer relations with the British Government by the appointment of a resident Political officer. This was followed by the execution of a convention which provided for the improvement of trade relations with Tibet; but the results in this respect were disappointing, and in 1904 a British Mission was sent into Tibet and penetrated as far as Lhāsa, where a new convention was executed by the Tibetan authorities.

[1] Short officiating appointments have been omitted.

Archaeology. Buddhist and Jain period.

The oldest remains of ascertained date are a series of inscriptions of Asoka, partly on rocks, as at DHAULI in Purī District and in a small cave high on the Chandan Pīr hill at SASARĀM, and partly on pillars, four in number, marking the route taken by the great king through Muzaffarpur and Champāran, on his visit to the sacred sites of Buddhism in what is now the Nepāl *tarai*; of the latter, the pillar near LAURIYĀ NANDANGARH is still almost perfect. Next, in point of time, come the caves on the KHANDGIRI and UDAYAGIRI hills, in the District of Purī, which were long believed to be Buddhist but are now thought to be mostly of Jain origin. Their period is fixed by an inscription of Kharavela in 165 B.C. With the exception of the Sonbhandar cave at RĀJGIR, dating from the third century A.D., these are the only Jain remains with any claim to antiquity. Buddhist relics, though frequently reduced to mere heaps of bricks, are far more plentiful, especially in South Bihār—the ancient Magadha, the birthplace of Jainism as well as of Buddhism — where the latter religion continued to flourish more or less until finally swept away by the Muhammadans. At BUDDH GAYĀ are still to be seen portions of an ancient stone railing, with interesting carvings in relief, dating from about the time of Asoka, which originally surrounded the holy *pīpal*-tree there. The present temple of Buddh Gayā was probably erected about A.D. 450, but it underwent many additions and repairs before it fell into ruins; its restoration was effected about twenty years ago under the auspices of Government, but the method in which the work was carried out has been much criticized. Interesting remains of the ancient city of Pātaliputra have recently been discovered at PATNA by Major Waddell. Numerous mounds at BARAGAON, 7 miles south of Bihār town, bury the remains of Nālanda, a famous seat of Buddhist learning down to the days of the Pāl kings. The innumerable Buddhist images still to be seen in every village in South Bihār date from the same period.

Hindu period.

The temple of Jagannāth at Purī and the Saiva temples at Bhubaneswar have already been mentioned (p. 21). The latter have recently been repaired, and efforts are now being made to remedy the inroads made by time and mischief in the temple of the Sun-god at Konārak, which was built by Nara Sinha Deva about A.D. 1275. Among other Hindu remains, which are far from numerous, may be mentioned the temples on the MUNDESWARI HILL in Shāhābād and at AFSAR near Gayā, both dating from the sixth or seventh century; a number

of stone temples at BARĀKAR and elsewhere in the old tract of Jhārkand, some of which are upwards of 500 years old; and some Bengali brick temples, from 200 to 400 years old, of which those at BISHNUPUR in Bānkurā and at KĀNTANAGAR in Dinājpur* are typical examples.

Under the rule of the independent Muhammadan kings, Bengal proper developed a peculiar style of Pathān architecture, the most striking feature of which is the curved battlement, imitating the peculiar shape of a Bengali hut. GAUR and PANDUA, in the District of Mālda*, the ancient capitals of those dynasties, still contain the best specimens of this type, such as the Bāraduāri of Rāmkel, the Dākhil Darwāza, the Tāntipāra, Sonā, and Lotan mosques, the Kadam Rasūl, and the Fīroz Minār. The Adīna mosque, at Pandua, was built by Sultān Sikandar Shāh in 1368. It is constructed almost entirely from the spoils of Hindu temples, which must have abounded in this neighbourhood[1]. Many of these are now being repaired. Among other buildings of this period may be mentioned the curious Shāt Gumbaz, a mosque with seventy-seven domes, near BĀGHERHĀT in the District of Khulnā, built by Khān Jahān, whose tomb is close to the mosque. At a second PANDUA, in Hooghly District, there is a large mosque and *minār* of about the year 1300; and close to it, at TRIBENĪ, is the *dargāh* of Zafar Khān Ghāzi and a mosque of the same period. Muhammadan period.

The short reign of Sher Shāh is still borne witness to by one of the finest specimens of Muhammadan sepulchral architecture, his own tomb at Sasarām, which place he originally held as his *jāgīr*. His father's tomb in the same town, and the tomb of Bakhtyār Khān, near Chainpur, in the Bhabuā subdivision of Shāhābād District, are similar but less imposing. The small hill-fort of SHERGARH, 26 miles south-west of Sasarām, dates from Sher Shāh's time, but at ROHTĀSGARH itself little remains of his period; the palace at this place is attributed to Mān Singh, Akbar's famous general. The *dargāh* of Shāh Daulat at MANER, near Dinapore, completed in 1616, is a fine specimen of architecture of the Mughal period; it is covered with most exquisite sandstone carvings. There are numerous other tombs and mosques of the same period at Patna, Bihār, Rājmahāl, Murshidābād, Monghyr, Dacca*, &c.; but they are of little interest compared with similar buildings in other parts of India.

[1] It has already been mentioned that Pandua is believed by many to be identical with the ancient Paundravardhana.

Population. The distribution of the population[1], as disclosed by the Census of 1901, is shown in Tables II and IIA at the end of this article (pp. 169–71). The total population of the Province, including Native States, is 78,493,410, of whom 39,278,186 are males and 39,215,224 females. Of the total number, 74,744,866 are in British territory and 3,748,544 in Native States.

Density. In the Province[2] as a whole there are 400 persons per square mile, but the density varies remarkably in different parts. It is greatest in North Bihār, where there are 634 persons per square mile. Central Bengal and West Bengal are also thickly peopled. Then follow South Bihār, Orissa, East and North Bengal, and last the Chotā Nāgpur plateau, which, with only 152 persons per square mile, is the area of least dense population. The density is far from uniform even in the same natural division. In East Bengal, for example, Dacca District* has 952 persons per square mile, while the Chittagong Hill Tracts* have only 24, and in North Bihār the number ranges from 908 in Muzaffarpur to 375 in Purnea. Howrah, with 1,668 persons per square mile, is the most thickly-inhabited District in Bengal, while the most sparse population is found in Sikkim (21 per square mile) and in the Chāng Bhakār* and Koreā* Tributary States of Chotā Nāgpur (22 per square mile). Marked variations are sometimes found even within the borders of a single District, e.g. in Dacca*, where the Srīnagar police circle contains 1,787 inhabitants per square mile compared with only 415 in Kāpāsia. As a general rule it may be said that the tracts where cold-season rice is the chief staple of cultivation are capable of supporting the largest number of inhabitants. Some parts of Bihār, where other crops are mainly grown, have a fairly dense population; but their inhabitants are not wholly dependent on local sources of income, and a large proportion of the adult males earn their livelihood in other parts of the Province, whence they make regular remittances for the support of their families.

Towns and villages. In the Province as a whole, out of every 100 persons, 95 live in villages and only 5 in towns[3]. Bengal is distinctly an agricultural country, and many even of the so-called towns

[1] The population of the Province as now constituted is 54,662,529, of whom 27,140,616 are males and 27,521,913 females. Of the total number, 50,722,067 are in British territory and 3,940,462 in the Native States.

[2] The present area of Bengal has a density of 368 persons per square mile.

[3] Of the present population 94 per cent. live in villages and 6 per cent. in towns.

are merely overgrown villages. The urban population is considerable only in Central Bengal, where the inclusion of Calcutta and its environs brings the proportion up to 19 per cent. The second place is shared by West Bengal, with its flourishing industrial centres at HOWRAH, BALLY, SERAMPORE, and RĀNĪGANJ; and by South Bihār, with its ancient towns of PATNA, GAYĀ, MONGHYR, and BIHĀR. In both these tracts 7 per cent. of the inhabitants live in urban areas. Orissa follows with an urban population of 4 per cent., then North Bihār and North Bengal with 3 per cent., and, lastly, East Bengal and the Chotā Nāgpur plateau with only 2 per cent. The order in which the different tracts stand is sufficient to show the want of any connexion between the prosperity of the people and the growth of towns. The general standard of comfort is highest in East Bengal, although it has the smallest proportion of persons living in towns. South Bihār ranks comparatively high in respect of its urban population, and yet it includes the poorest part of the Province. The older towns, which usually owed their origin to the presence of a native court, have few industries, and such as they possess are for the most part decadent; while in the newer towns the industries are carried on by foreign capital, and even the employés come from other parts of the country. The mills of Howrah and the coal-mines of ASANSOL are alike worked, with British capital, by coolies from Bihār and the United Provinces; and the shopkeepers, who are enriched by the trade they bring, are also for the most part foreigners.

The population of Calcutta, as limited by the jurisdiction of the municipal corporation, is 848,000; but to this should be added that of its suburbs (101,000), and also of Howrah (158,000), which lies on the opposite bank of the Hooghly and is as much a part of Calcutta as Southwark is of London. With these additions, the number of inhabitants rises to 1,107,000, which is greater than that of any European city except London, Constantinople, Paris, and Berlin. Next to Calcutta Howrah is now the largest town in Bengal. It is of entirely modern growth, and owes its position to its growing importance as a manufacturing centre. The increase during the last decade has been 35 per cent., and it has grown by no less than 80 per cent. since 1872. Patna, which stands next, has a very ancient history, and its population was once much greater than at present. It was estimated by Buchanan-Hamilton at 312,000; but his calculation referred to an area of 20 square miles, whereas the city as now defined has rather

less than half that area. At the present time its prosperity is declining, owing to the gradual diversion of trade from the river to the railway. At the time of the Census plague was raging in the city, and the recorded population was only 134,785. Six months later, when the epidemic had subsided, a fresh count showed it to be 153,739, which was still less by nearly 17,000 than in 1881. Dacca* was also a flourishing city long before the days of British rule. For about a century it was the capital of the Nawābs, and its muslins were once famous throughout Europe. When the demand for these muslins declined, its prosperity was seriously affected, and in 1830 its inhabitants numbered only about 70,000. Since then the growth of the jute trade has caused a revival, and the population has now risen to 90,542.

The villages of Bengal vary greatly in different parts. In Bihār, especially south of the Ganges, the buildings are closely packed together, and there is no room for trees or gardens. As one goes eastwards, the houses, though still collected in a single village site, are farther apart, and each stands in its own patch of homestead land, where vegetables are grown, and fruit trees and bamboos afford a grateful protection from the glare of the tropical sun. Farther east, again, in the swamps of East Bengal, there is often no trace of a central village site, and the houses are found in straggling rows lining the high banks of rivers, or in small clusters on mounds from 12 to 20 feet in height laboriously thrown up during the dry months when the water temporarily disappears. The average population of a village is 335, but the definition of this unit for census purposes was not uniform. In some parts the survey area was adopted; elsewhere the residential village with its dependent hamlets was taken; but in practice it was often found very difficult to decide whether a particular group of houses should be taken as a separate entity or treated as a hamlet belonging to some other village.

Growth of population.

The information regarding the early population of Bengal is scanty and unreliable. In 1787 Sir William Jones thought that it amounted to 24 millions, including part of the United Provinces then attached to Bengal. Five years later Mr. Colebrooke placed it at 30 millions. In 1835 Mr. Adam assumed it to be 35 millions, but this estimate was thought too high and was reduced to 31 millions in 1844. In 1870 the population was held to be about 42 millions, or more than a third less than the figures disclosed by the first regular Census of the Province, which was taken in 1872. The

changes recorded by subsequent enumerations are shown below :—

Locality.	Percentage of variation.			
	1872–81.	1881–91.	1891–1901.	Net variation, 1872–1901.
Province* . . .	+ 11·5	+ 7·3	+ 5·1	+ 25·9
West Bengal . . .	− 2·7	+ 3·9	+ 7·1	+ 8·3
Central " . . .	+ 11·7	+ 3·1	+ 5·1	+ 21·3
North " . . .	+ 5·3	+ 4·4	+ 5·9	+ 16·6
East " . . .	+ 10·9	+ 14·1	+ 10·4	+ 39·9
North Bihār . . .	+ 14·0	+ 5·8	+ 0·1	+ 20.8
South " . . .	+ 10·9	+ 2.6	− 3·6	+ 9·7
Orissa	+ 17·6	+ 6.8	+ 7·1	+ 34·5
Chotā Nāgpur plateau .	+ 32·1	+ 13·5	+ 7·8	+ 61·8

* The corresponding percentages of variation for Bengal as now constituted are + 3·2, + 6·5, + 13·5, and + 24·7.

Between 1872 and 1881 the Chotā Nāgpur plateau showed the greatest apparent growth of population, but this was due mainly to the inaccuracy of the first Census in this wild, remote, and sparsely-peopled tract. Orissa, which came second, had suffered a terrible loss of population in the great famine of 1866, and its rapid growth was the natural reaction from that calamity during a period of renewed prosperity. In North and South Bihār, as in Chotā Nāgpur, the Census of 1872 was defective, and the increment recorded in 1881 was to a great extent fictitious. The decline in West Bengal was due to a virulent outbreak of malarial fever. Between 1881 and 1891 the apparent rate of development in East Bengal and Chotā Nāgpur was about the same, but the latter tract again owed part of its increase to better enumeration, and the real growth was greatest in East Bengal. Then followed Orissa and North Bihār, then North Bengal, and then, in order, West Bengal, Central Bengal, and South Bihār. At the Census of 1901 East Bengal again heads the list, and is followed in order by the Chotā Nāgpur plateau, Orissa, West Bengal, North Bengal, and Central Bengal. The population of North Bihār is stationary, while that of South Bihār has suffered a loss of 3·6 per cent.

So far as the figures go, the rate of growth in the Province as a whole shows a progressive decline, but this is due to a great extent to omissions at the earlier enumerations. The pioneer Census of 1872 was admittedly very incomplete. That of 1881 was much more accurate; and although it is impossible to estimate, even approximately, the extent to which this affected

the comparative results of the two enumerations, it would probably be quite safe to say that, if the two enumerations had been equally accurate, the excess of the figures for 1881 over those for 1872 would have been less than the increment disclosed by the Census of 1901 as compared with that of 1891. But although the Census of 1881 was very much more complete than that of 1872, there were still tracts where the standard of accuracy fell considerably below that attained ten years later; and it has been estimated that of the increase disclosed by the Census of 1891, about half a million may be ascribed to the greater accuracy of that enumeration, but even so the increment then recorded exceeds that of the last decade by about 800,000. It is calculated that the plague, which appeared for the first time in 1898, accounted for 150,000 deaths; while the cyclone of October 24, 1897, which devastated large tracts in Chittagong*, is believed to be responsible, directly and indirectly, for a mortality of about 50,000. Apart from the deaths due to plague and cyclone, there seems no reason to believe that there has been any general increase in the death-rate, and the slower rate of growth seems to be due rather to a falling off in the birth-rate. In Orissa and Central and West Bengal the birth-rate prior to 1891 was abnormally high, owing to the recovery, in the one case, from the famine of 1866, and, in the other, from the ravages of malarial fever. In Bihār successive bad seasons have led to various preventive checks on the growth of the population; but, as noticed elsewhere, they do not appear to have affected the death-rate, and it is only among the wild tribes of Chotā Nāgpur that a certain amount of mortality was possibly attributable to famine.

Migration. The number of immigrants to Bengal from other parts of India, according to the Census of 1901, is 728,715, and the corresponding number of emigrants is 879,583. By far the greatest influx is from the United Provinces, which send a continually growing supply of labourers for the mills of the metropolitan Districts and the coal-fields of Burdwān and Mānbhūm, and for earthwork, *pālki*-bearing, &c., throughout the Province. The total number of persons born in the United Provinces and its States, but enumerated in Bengal, was 496,940 in 1901, compared with 365,248 in 1891 and 351,933 in 1881. These figures include the ebb and flow between contiguous Districts along the boundary line. If this be left out of account, the number of immigrants from the United Provinces at the Census of 1901 is about 416,000. Of these, nearly three-

sevenths were found to be residing in Calcutta, the Twenty-four Parganas, and Howrah [1]. The emigrants to the United Provinces numbered only 128,991, of whom all but about 32,000 were found in Districts contiguous to the District of their birth.

The emigrants from Bengal to Assam in 1901 numbered nearly 504,000, or 85,000 more than at the previous Census. Of these, 300,000 were from the Chotā Nāgpur plateau, which is the great recruiting ground for the tea gardens of Assam. About 157,000 persons born in Bengal were enumerated in Burma, compared with 112,000 in 1891. The majority were harvesters from the adjoining District of Chittagong*; but many also were from Bihār, and some of these have been settled on waste-land grants in Upper Burma.

Of migration within the Province, the most noticeable feature is the great movement from Bihār to Bengal proper in quest of employment in coal-mines and factories, or on earthwork, or as field-labourers. These immigrants are for the most part adult males who eventually return to their old homes. Their total number at the time of the Census was very little short of half a million. Another internal movement of a more permanent nature is that of the tribes of the Chotā Nāgpur plateau, who, in addition to 300,000 persons enumerated in Assam, have given 400,000 to Bengal proper. The Santāls have been working their way steadily north and east for seventy years or more, and are now found in considerable numbers in the elevated tract known as the Bārind, in the centre of North Bengal, which they are rapidly bringing under cultivation. The other tribes are following their lead as pioneers of cultivation; many also take service in the coal-fields and in the tea gardens of Jalpaigurī* and the Darjeeling *tarai*, and large numbers leave their homes every cold season to obtain employment on earthwork or as field-labourers.

Age.

The age return is so inaccurate that very little reliance can be placed on the absolute results. The degree of error may, however, be assumed to be fairly constant, and, if so, some interesting conclusions may be deduced by a comparison of the figures for successive Censuses. It would seem that the mean age of the population, which fell slightly in 1891, has

[1] The Districts of the United Provinces from which most of the immigrants come are those in the extreme east: namely, Ballia, Azamgarh, Ghāzīpur, Gorakhpur, Benares, Jaunpur, Mirzāpur, and Allahābād. Then come the Districts immediately to the west of these: namely, Fyzābād, Sultānpur, Partābgarh, Rāe Barelī, Lucknow, Fatehpur, and Cawnpore.

now risen to a somewhat higher figure than in 1881[1]. This is due mainly to the variations in the birth-rate. The population was growing more rapidly than usual in the decade ending 1891, which was a period of recovery from famine and disease, and the larger proportion of young children reduced the average age of the population as a whole. The higher castes appear to live longer than the aboriginal tribes, while the latter have larger families than any other section of the community. There does not seem to be much difference in the relative longevity of Hindus and Muhammadans, but the latter have a larger proportion of children than the Hindus, and the mean age of the community is consequently lower.

Registration of vital statistics.

Births and deaths are recorded throughout the Province, except in Angul, the Chittagong Hill Tracts*, and the Feudatory States. The present system of mortuary registration was introduced in 1869. The duty of reporting deaths was imposed on the *chaukīdārs*, or village watchmen, and not on the relations of the deceased. In 1876 the system was extended to births; but the returns received were so incomplete that they were soon discontinued and, except in towns, for which special legislation was undertaken in 1873, deaths alone were registered until 1892. In that year the collection of statistics of births as well as of deaths was ordered, and the system now in vogue was introduced. In the Chaukīdāri Amendment Act of 1892, the reporting of vital occurrences was made one of the legal duties of the *chaukīdārs*. The births and deaths occurring in each beat are entered on leaflets by the *chaukīdār*, or, if he be illiterate, by the *panchāyat*, and taken by the former to the police station when he attends his weekly muster. A consolidated monthly statement is compiled at the police station and submitted to the Civil Surgeon, who prepares a similar return for the whole District. The accuracy of the reporting is checked by the police and other local officers, but the most valuable testing agency is that of the vaccination establishments, who are required to make inquiries regarding vital occurrences when on their rounds to test the vaccination operations. Errors and omissions thus brought to light, which usually range from 1 to 1½ per cent. on the total number of vital occurrences, are communicated to the District Magistrate and

[1] By mean age is meant the average age of the living, which (except in a stationary population) is not the same thing as the mean duration of life. The mean age of males is calculated to have been 24·2 years in 1881, 24·0 in 1891, and 24·3 in 1901. These figures, however, are mere approximations.

the *chaukīdārs* at fault are punished. Under the special Act for towns the reporting of births and deaths by the nearest male relative was made compulsory. The information was collected for some time by the municipal authorities, but the results were not satisfactory, and the duty was subsequently transferred to the police.

These measures have led to a great improvement in the accuracy of the vital statistics. The latest estimate of the birth- and death-rates in Bengal is that of Mr. Hardy, F.I.A., F.S.S., based on the Census figures for 1891 and 1901, which places them at 43·9 and 38·9 per 1,000 respectively. The rates according to the returns are still below this estimate, but the figures reported from year to year show a gradual improvement; and they are now sufficiently accurate not only for the purpose of showing the relative healthiness or unhealthiness of the year, but also for calculating the approximate growth of the population. The increase shown by the Census of 1901, as compared with that taken ten years previously, in the areas for which vital statistics are collected, was 3,358,576, while that indicated by the excess of reported births over deaths was 3,159,200. In Noākhāli* in 1900 the reported birth-rate was 52·3 per 1,000 calculated on the population disclosed by the Census of 1901, and in Patna in 1901 the reported mortality was 56·8.

According to the returns, more than 70 per cent. of the total mortality is ascribed to fever. This is due mainly to the difficulty of diagnosing all but a few well-defined diseases. Cholera, dysentery, and small-pox are known, but most other complaints are classed indiscriminately as fever. It is impossible to say what proportion of the total is attributable to malarial affections, but it may safely be assumed that, wherever the mortality entered under 'fevers' is unusually high, the greater part of the excess over the normal is due to their prevalence. On an average, about one-twelfth of the total mortality is due to cholera, but the prevalence of this disease varies greatly from year to year and from District to District. In 1898 it was responsible for less than one death per 1,000 of the population of the Province, but in 1900 the mortality from it rose to nearly 5 per 1,000. In the latter year it killed off nearly 24 persons in every 1,000 in Purnea, while in Bānkurā only one person in 4,000 died from the disease. Dysentery and diarrhoea account for barely a quarter as many deaths as cholera, while small-pox claims only one victim in every 5,000 persons yearly. Diseases.

Plague. Plague first appeared in Bengal in 1898, when there were two outbreaks, one in Calcutta and the other in Backergunge*. In the early part of 1899 it again visited Calcutta, and there were also outbreaks in ten rural Districts; and in the cold-season months of 1900–1 the disease spread over a larger area, not less than 40,000 deaths being caused by it during that period. Plague has now become an annual visitation in many parts of the Province, twenty-seven Districts altogether being affected in 1905. In the eastern Districts the conditions, whether of soil, climate, or habitations, seem to be inimical to the propagation of the microbe; but in the north-western part of the Province, and particularly in the Patna Division, the disease has established itself firmly, coming and going with the seasons with wonderful regularity, being most prevalent in the winter, and then practically disappearing or remaining dormant throughout the hot and rainy seasons, to recrudesce in September with the advent of the cold season. The mortality from plague in 1905 was the highest on record since it first broke out in 1898, the total number of deaths being 126,000, as against 75,000 in 1904 and 58,000 the average of the preceding quinquennium.

Infant mortality. As in other parts of India, so also in Bengal, the infant mortality is very high, and it was estimated in 1891 by Mr. Hardy that only 71 per cent. of male and 75 per cent. of female children survive the first year of life. During the second year the mortality is believed to be only one-third as great as in the first year, and it then continues to fall rapidly.

VITAL STATISTICS AS REGISTERED

Year.	Population under registration.	Ratio of registered births per 1,000.	Ratio of registered deaths per 1,000.	Deaths per 1,000 from			
				Cholera.	Small-pox.	Fever.	Bowel complaints.
1881	66,106,026	Not available.	19.0	1.3	0.4	15.7	0.9
1891	70,388,083	Not available.	26.9	3.3	0.2	18.9	0.6
1896	71,070,233	38.0	34.2	3.2	0.2	24.8	0.7
1901	74,428,193	38.6	31.0	1.5	0.5	21.7	0.8

Sex. The actual population shows a slight deficiency of females, who number only 998 to every 1,000 males[1]; but if the effects of migration be discounted by considering only the natural population, i. e. the persons born in the Province, it appears that the females exceed the males in the ratio of 1,003 to 1,000.

[1] In the present area of Bengal there are 1,015 females to every 1,000 males.

They are in marked excess in Bihār and Orissa and, to a less extent, in West Bengal and the Chotā Nāgpur plateau. East of the Bhāgīrathi, where the Mongoloid element in the population is largest, they are in a considerable minority. There has been a steady decline in the proportion of females since 1881, due to the fact that the most progressive tracts are, generally speaking, those where males predominate, while many of the Districts with the largest proportion of the other sex are stationary or decadent. In urban areas females are generally in marked defect, and in Calcutta they are only half as numerous as the males.

The most striking fact brought out by the statistics of marriage is the universality of this institution. The number of persons, other than those suffering from some bodily or mental affliction, who go through life unmarried is extremely small. About half the total number of males were returned at the Census as unmarried, but of these four-fifths were under fifteen years of age. Only one-third of the female population was unmarried, and of these only 4 per cent. were over fifteen. The proportion of the widowed is about one in 25 in the case of males, but among females nearly one in every 5 is a widow. Marriage.

The marriage practices vary greatly in different parts of the Province, especially in regard to females. The girls of the animistic tribes marry when they are about seventeen or eighteen years of age. Muhammadan girls marry earlier, but not so early as those of the Hindus, with whom marriage before puberty is the rule. In some parts of Bihār the Hindus give their children in wedlock much earlier than elsewhere, and in Darbhangā and the neighbourhood both boys and girls are frequently married before the age of five. Widows remarry most freely amongst the animistic tribes, and least so amongst the Hindus. Hindu widows of the higher castes are everywhere forbidden to take a second husband, and in Bengal proper the prohibition extends to all but the lowest castes. The result is that the proportion of Hindu women of child-bearing age who are widowed is nearly twice as great in this tract as elsewhere. In the Province as a whole the age at marriage is gradually rising, while the proportion of the widowed is diminishing. The former circumstance is due, in part at least, to a genuine change in the customs of the people. In Darbhangā and the neighbourhood, infant-marriage is as prevalent as ever, but elsewhere the tendency is to postpone the age at which girls are given in wedlock. The decline in the number of widows is due

partly to the fact that the Muhammadans, animistic tribes, and low Hindu castes, who permit their widows to marry again, are increasing more rapidly than the section of the community that forbids them to do so, and partly to the effect of the preaching of the Maulvis amongst the Muhammadans and to the gradual disappearance of their old Hindu prejudices against widow marriage.

Polygamy and polyandry.

Polygamy is allowed among Hindus, Musalmāns, and Animists alike, but in the case of the first mentioned it is often accompanied by restrictions; many castes allow a man to take a second wife only when the first is barren or suffers from some incurable disease; frequently the permission of the caste *panchayāt* has to be obtained, and in some cases that of the elder wife. With the Muhammadans there are in theory no restrictions on the practice, so long as a man does not exceed the limit of four wives prescribed by the Prophet, but in practice the poorer classes at least are almost invariably monogamous. The fraternal form of polyandry, where a man's younger brothers share his wife, still survives amongst the Bhotiās; but it seems to be dying out. The woman is regarded as the wife of the elder brother, and the children that are born of her call him 'father' and his brothers 'uncle.' The woman moreover can, if she wishes, withhold her favours from the younger brothers. A somewhat similar system prevails amongst the Santāls.

Civil condition.	Sex.	1881.	1891.	1901.
Unmarried	Male	15,403,131	16,881,400	17,747,071
	Female	9,830,370	11,096,693	11,701,711
	Total	25,233,501	27,978,093	29,448,782
Married	Male	16,381,811	17,138,038	18,103,648
	Female	16,445,679	17,257,257	18,151,092
	Total	32,827,490	34,395,295	36,254,740
Widowed	Male	1,333,163	1,484,295	1,526,063
	Female	7,195,705	7,382,018	7,515,281
	Total	8,528,868	8,866,313	9,041,344

NOTE.—The figures are for British Districts only, and those for 1881 and 1891 exclude the Chittagong Hill Tracts, as civil condition in that District was not recorded at those enumerations.

Language.

Excluding immigrants, the languages spoken in Bengal belong to one or other of four linguistic families: Aryan, Dravidian, Mundā or Kolarian, and Tibeto-Burman. Of these, the languages of the Aryan family are by far the most important, being spoken by no less than 95 per cent. of the total population. The Mundā family comes next, but its speakers represent only 3½ per cent. of the total, while the

other two families each claim less than 1 per cent. The Aryan languages are spoken in the plains by almost the whole population, while those of the other families are current only in the hills or among recent settlers in the plains. The home of the Mundā and Dravidian dialects is in the Chotā Nāgpur plateau. The Tibeto-Burman languages are found partly in Darjeeling and Sikkim and the adjoining District of Jalpaigurī*, and partly in the south-eastern corner of Bengal, in the Chittagong Hill Tracts* and Hill Tippera*. There are also a few scattered colonies of people speaking languages of this family in Dacca* and Mymensingh*. All these non-Aryan dialects are gradually dying out, and are being replaced by some Aryan form of speech. The main Aryan languages of Bengal are Bengali, Bihārī, Eastern Hindī, and Oriyā. The Census does not distinguish Bihārī from Hindī. On the average, of every 1,000 persons in the Province, 528 speak Bengali, 341 Hindī (including Bihārī), 79 Oriyā, and 1 Khas, leaving only 51 persons per 1,000 for all the other languages put together.

Language spoken.	1881.	1891.	1901.
Bengali . . .	35,785,208	37,898,102	40,714,099
Hindī . . .	24,390,566	25,985,028	26,151,361
Oriyā . . .	4,186,272	4,605,626	4,561,323
Mundārī . .	28,183	493,453	383,843
Ho . . .	...	...	236,011
Santālī . . .	1,004,239	1,360,220	1,510,881
Oraon . . .	9,299	362,803	438,226

NOTE.—The figures are for British territory only.

Bengal proper, Bihār, and Orissa each has its own caste system, with many castes not found elsewhere, and in the north there are numerous representatives of the caste system of Nepāl. Chotā Nāgpur is peopled mainly by Dravidian tribes who are still outside the pale of Hinduism, and on the eastern border there are many similar tribes of Mongoloid stock. The main characteristics of the Dravidians are a long head, a very broad bridgeless nose, a full round eye, thick protruding lips, hair inclined to be woolly, somewhat low stature, black colour, and absence of muscle on the limbs, especially the legs. The Mongoloid nose is also broad and bridgeless, but less so than the Dravidian; the head is short, the eye oblique and narrow, the cheek-bones very prominent, the hair coarse and straight, the colour inclined to yellow, and the figure short and clumsy, but very muscular. The

Race and caste.

Aryan type, which is comparatively rare in Bengal, except among some sections of the higher castes, differs markedly from the others. The head is long, like the Dravidian, but the features are finely cut, and the thin nose in particular is characteristic; the figure is tall and well shaped, and the hair is comparatively fine.

Owing to the size of the Province and the inclusion within its limits of the dissimilar tracts described above, the number of its castes and tribes is exceptionally great. There are 66 castes with 100,000 members each, and 15 with a strength of more than a million: namely (in order of numbers), the Ahīr (or Goālā), Brāhman, Kaibartta, Rājbansi (including Koch), Namasūdra (Chandāl), Santāl, Chamār (including Muchī), Rājput, Kurmī, Teli, Kāyasth, Koiri, Dosādh, Bābhan, and Bāgdi. The Ahīrs, who number nearly four millions, are by far the most numerous; next follow the Brāhmans with nearly three millions, the Kaibarttas with two and a half millions, and the Rājbansis with over two millions. The Brāhmans and Kāyasths are found everywhere, and so also are the Chamārs, Telis, and Ahīrs, though to a less extent; the Rājputs, Kurmīs, Koiris, Dosādhs, and Bābhans are, in the main, Bihār castes. The home of the Kaibarttas and Bāgdis is in West, of the Rājbansis in North, and of the Namasūdras in East Bengal; the Santāls are one of the great non-Hindu tribes who inhabit the Chotā Nāgpur plateau.

Religion. The persons who described themselves at the Census as Hindus constitute 63 per cent. of the total population[1] of the Province, and the Muhammadans 33 per cent.; all other religions taken together make up only 4 per cent. of the population. Hindus are most numerous in Bihār (excluding Mālda* and East Purnea), Orissa, and West Bengal, and Muhammadans in the Districts lying east of the Bhāgīrathi and the Mahānandā. The Musalmāns of Bengal form more than two-fifths of the total number in India.

The actual numerical increase since 1891 is about the same for both the main religions; but compared with their previous strength, the followers of the Prophet have increased by nearly 8 per cent., while the Hindus have gained only 4 per cent. The most progressive part of the Province is that inhabited by Muhammadans, while Bihār, the stronghold of Hinduism, has returned a smaller population than in 1891; but this affords only a partial explanation of the figures, and the Muhammadans

[1] In the present area of Bengal, Hindus constitute 78 per cent., Muhammadans 17 per cent., and other religions 5 per cent. of the population.

have gained ground in every Division as compared with their Hindu neighbours. The subject has been discussed at length in the *Census Report* for 1901, where it is shown that Islām gains to some extent through conversions from Hinduism, but chiefly on account of the greater prolificness of its adherents. They have a more nourishing dietary, their girls marry later, and they permit widow marriage. They are also, in Eastern Bengal, more prosperous than the Hindus, as they have fewer prejudices about changing their residence and move freely to new alluvial formations, where the soil is exceptionally fertile. The advance made by Islām is to some extent obscured by the fact that Hinduism has itself been gaining new recruits from the ranks of the animistic tribes—the Santāls, Mundās, Oraons, and other so-called aborigines. These tribes are very prolific, and yet the strength of the animistic religions has increased by only 1 per cent. The natural growth was probably at least 11 per cent., but this has been counterbalanced by conversions to Christianity and Hinduism. Christianity has taken some 60,000 during the decade. The rest (about 200,000) have entered the fold of Hinduism.

Some aspects of Hinduism in Bengal.

The conventional divisions of Hinduism are better known to the readers of textbooks than to the people themselves. In Bengal proper and Orissa, where the Vaishnava reformer, Chaitanya, gained a great following, the people may often give a definite reply to the question, whether they are followers of Vishnu or of Siva and his wife; but in Bihār it would be extremely difficult to collect accurate information on the subject. Moreover, it is only the members of the highest castes who concentrate their worship on the deities of the orthodox Hindu pantheon. The everyday religion of the lower orders consists largely of the propitiation of a host of minor deities and spirits. The personified powers of nature—the Earth, Sun, planets, and certain mountains and rivers—are worshipped everywhere; deified heroes are the main objects of veneration in many parts of Bihār, while in West and part of North Bengal snake-worship is widely prevalent. Farther east various aboriginal deities are adored as forms of the goddess Kālī. In addition, almost every village has its special tutelary spirits, who preside over the welfare of the community and have their home in a tree or sacred grove somewhere within its precincts. There are again numerous disembodied spirits of persons who have met with a painful or violent death, e. g. of women who died in child-birth or of persons killed by wild animals. These hover round the scene of their former existence and cause

various kinds of illness and misfortune, and they thus require to be propitiated. In the quaint and childish ceremonial observed at the worship and propitiation of these demons and spirits, the Brāhman has, as a rule, no place.

A third aspect of the amorphous collection of religious ideas known as Hinduism is furnished by the followers of the different persons who have from time to time set themselves up, sometimes as inspired teachers, but more often as incarnations of the supreme deity. The Kartābhajās, for example, regard their founder, a man of the Sadgop caste, as an incarnation of the Divinity, and his descendants are held in equal veneration. The exhibition of fervid love is the only form of religious exercise practised by them, and indescribable excesses are said to take place at their secret nocturnal meetings.

Places of worship.

The religion of the uneducated majority of the people is a mixture of Hinduism and Animism, in which the belief in evil spirits is the main ingredient. There must be something tangible to represent a beneficent or even a malignant spirit, on which vermilion can be rubbed, over which a libation can be poured, and before which a fowl, goat, or pig can be sacrificed. Accordingly, the simple villagers set up a shapeless stone or block, or even a mound of mud, to represent the spirit whom they worship, while side by side with it is a temple dedicated to one of the regular gods of the Hindu pantheon. The architecture of these temples varies greatly in different parts of the Province. In Bihār their distinguishing feature is a tall pyramidal spire, the outline of which appears originally to have been determined by the natural bend of two bamboos, planted apart in the ground, and drawn together at the top. In Lower Bengal the temples are dome-shaped structures, with a peculiar hog-backed roof, which has obviously been modelled on the form of the ordinary Bengali huts surrounding them.

The Muhammadans of Bengal.

The Muhammadans of Bengal are mostly, in name at least, Sunnis. But the great majority are of Hindu origin, and their knowledge of the faith they now profess seldom extends beyond the three cardinal doctrines of the Unity of God, the Mission of Muhammad, and the Truth of the Korān. It was, until recently, the regular practice of low-class Muhammadans to join in the Durgā Pūjā and other Hindu festivals, and, although they have been purged of many superstitions, many still remain. In particular, they are very careful about omens and auspicious days. Dates for weddings are often fixed after consulting a Hindu astrologer; bamboos are not cut, and the building of new houses not commenced, on certain days of the

week, and journeys are often undertaken only after referring to the Hindu almanac to see if the proposed day is auspicious. When disease is prevalent, Sītala and Rakshyā Kālī are worshipped. Dharmarāj and Manasā or Bishaharī are also venerated by many ignorant Muhammadans. Sashthī is worshipped when a child is born. Even now in some parts of Bengal they observe the Durgā Pūjā and buy new clothes for the festival like the Hindus. In Bihār they join in the worship of the Sun, and when a child is born they light a fire and place cactus and a sword at the door to prevent the demon Jawān from entering and killing the infant. At marriages the bridegroom frequently follows the Hindu practice of smearing the bride's forehead with vermilion. Offerings are made to the *grāmya devatā* ('village god') before sowing or transplanting rice seedlings, and exorcism is resorted to in case of sickness. These practices are gradually disappearing, but they die hard, and amulets containing a text from the Korān are commonly worn, even by the Mullās who inveigh against these survivals of Hindu beliefs.

Apart from Hindu superstitions, there are certain forms of worship common among Muhammadans which are not based on the Korān. The most common of these is the adoration of deceased Pīrs. When a holy man has departed from this life, he is popularly believed to be still present in spirit, and his tomb becomes a place of pilgrimage to which persons resort for the cure of disease or the exorcism of evil spirits, or to obtain the fulfilment of some cherished wish. The educated stoutly deny that Pīrs are worshipped, and say that they are merely asked to intercede with God; but among the lower classes it is very doubtful if this distinction is recognized. Closely allied to the adoration of Pīrs is the homage paid to certain mythical persons, among whom Khwāja Khizr stands pre-eminent. This personage appears to have been a pre-Islāmic hero of the Arabs, and he is believed at the present day to reside in the seas and rivers of India and to protect mariners from shipwreck.

These unorthodox beliefs are violently inveighed against by numerous reformers, most of whom owe their inspiration to Ibn Abdul Wahhāb of Nejd in Arabia, who, early in the eighteenth century, founded the sect called Wahhābi. He rejected the glosses of the Imāms, denied the superiority of the Ottoman Sultān, made comparatively light of the authority of Muhammad, and insisted on the necessity for waging war against all infidels. His followers in India at the present day do not accept all his views, and many now hold that India is not a

country in which war against the infidels is lawful. But they are all united in their opposition to non-Islāmic superstitions, and in many places they seem to have succeeded to a great extent in eradicating them.

In Eastern Bengal the Wahhābi movement met with considerable success during the nineteenth century. The principal local reformers were Dudhu Miān and Karāmat Alī. The adherents of both are known as Farāzis, or 'followers of the law'; but there is a considerable difference between them, the latter being pure revivalists, while the former subscribe to the extreme views of the original Wahhābis regarding infidels.

Christian missions.

The aggregate Christian population in 1901 was 278,366, compared with 192,484 in 1891. Of the total number, 27,489, or 9·9 per cent., belong to European and allied races; 23,114, or 8·3 per cent., are Eurasians; and 227,763, or 81·8 per cent., are native converts or their descendants. About nine-tenths of the Europeans are of British nationality. The great increase of the Christian population during the decade is due to new conversions, especially in Chotā Nāgpur, and more particularly in Rānchī, where the German Lutheran missionaries have met with great success. This District now contains 124,958 Christians, against 75,693 only ten years ago. Some other Districts in the Province which show a noteworthy increase in the number of Christians are noted below:—

Number of Christians in	Calcutta.	Santāl Parganas	Darjeeling.	Jalpaigurī*.	Burdwān.	Mānbhūm.	Mymensingh*.
1891 . .	28,997	5,943	1,502	357	1,408	1,532	211
1901 . .	37,925	9,875	4,467	2,486	2,960	2,910	1,291

The return of sects shows that 165,528 are Protestants and 108,194 Roman Catholics; the balance consists of persons who failed to specify their sect, and Armenians, &c. Of the Protestants, 61,024 belong to the Anglican communion, 69,580 are Lutherans, 21,621 Baptists, and 6,691 Presbyterians. The remainder belong to various miscellaneous sects.

The great centre of Roman Catholic missionary enterprise in this Province is Rānchī, where three-fifths of the total number of converts are found. The next largest community of Roman Catholic native Christians is in Dacca*, where they exceed 10,000 (partly descended from Portuguese settlers in the seventeenth century); the number is also considerable in Calcutta, the Twenty-four Parganas, Nadiā, and Champāran. The mission in the last-mentioned District is the oldest of all, dating from 1740.

Of the Protestant missions the best known and most successful is that in Rānchī, which was started in 1845 by six German missionaries, under the name of Gossner's Mission. An unfortunate disagreement took place twenty-three years later, and the mission was split up into two sections, the one enrolling itself under the Society for the Propagation of the Gospel, and the other retaining the original designation. The first mission of the Church of England was started in Burdwān in 1816; but the success here has not been so great as that of the offshoot of Gossner's Mission in Rānchī, which has already been mentioned, nor as that in the adjoining District of Nadiā, which was founded by the Church Missionary Society in 1831, and now claims nearly 6,000 native Christians. Among other missions of the Church of England, those in the Twenty-four Parganas, Calcutta, and the Santāl Parganas are the most successful. The Baptists have their head-quarters in the swamps of Backergunge* and Farīdpur*, where they have been working among the Chandāls since 1824. The number of their converts now exceeds 7,000. The Cuttack mission, founded in 1822, claims 2,000 converts. The missionaries of the Church of Scotland have been at work since 1870 in Darjeeling and Jalpaigurī* Districts with a fair measure of success.

So far as the Anglican Church is concerned, the whole of Bengal, with the exception of Chotā Nāgpur, which is under an Assistant Bishop, lies in the diocese directly administered by the Bishop of Calcutta, the Metropolitan of India. The ecclesiastical jurisdiction of the Roman Catholic Church vests in an Archbishop resident in Calcutta, who has suffragan sees at Krishnagar and Dacca*; but certain small communities of Portuguese origin are under the Portuguese Vicar-General of Bengal.

Other religions.

Of the other religions returned at the Census it will suffice to mention the Buddhists, numbering about a quarter of a million, found mainly on the confines of Burma and Nepāl; the Jains (7,831), who are mostly immigrant traders; and the Brahmos or Hindu Theists (3,171).

Religion.	1881.	1891.	1901.
Hindu	43,267,460	45,217,831	46,737,543
Animist	1,668,266	2,294,506	2,242,770
Musalmān	21,492,766	23,437,352	25,265,342
Christian	127,412	190,829	275,125
Buddhist	155,269	189,122	210,628
Others	39,321	17,321	13,458

NOTE.—The figures are for British Districts only, and the details for 1881 and 1891 are the adjusted figures on the area of 1901.

Occupations. The most striking feature in the returns of occupation is the very large proportion of persons who are dependent on agriculture. Nearly two-thirds of the population are either landlords or tenants; 6 per cent. have been returned as agricultural labourers; and of the 7 per cent. shown as general labourers the great majority must also be mainly dependent on agriculture. About 12 per cent. of the total population (including dependents) are engaged in the preparation and supply of material substances; and of these half find a livelihood by the provision of food and drink, and a fifth by making and dealing in textile fabrics and dress. Domestic and sanitary services provide employment for very few, the number of persons who support themselves in this way being barely 2 per cent. of the population, or less than a third of the proportion so employed in England and Wales. Commerce, transport, and storage provide employment for 2 persons in every 100, of whom rather more than half are engaged on transport and storage, and slightly less than half on commerce. Professions, including the priesthood, are the means of subsistence of less than 2 persons per 100.

Social characteristics of the people. Food. In East Bengal the cultivator takes as a rule three meals a day. He begins in the early morning with rice left over from the previous night's supper, parched or popped rice, and jack-fruit or mango when in season. The midday and evening meals have boiled rice as their foundation, and with it are mixed pulses of different kinds, fish, or vegetables. Muhammadans eat meat when they can afford it. Among the poorer classes in Bihār conditions are very different. The principal meal is taken at nightfall and consists of some coarse grain, such as maize or a millet, boiled into a porridge. A lighter meal of the same diet is taken at midday, but only the well-to-do enjoy two full meals a day. In Orissa rice again forms the staple diet, but the cultivator is content with a full meal in the evening of rice boiled with a little salt, some pulse or vegetables, and perhaps fish; in the morning he eats cold the remains of the evening meal. In Chotā Nāgpur a cold meal is taken at noon, and a hot supper in the evening; the food consists sometimes of rice or maize, but more commonly of a millet such as *maruā* (*Eleusine coracana*) or *gondli* (*Panicum miliare*), pulses, oil, vegetables, &c. These are eked out with jungle fruits and roots, and especially with the blossoms of the *mahuā* tree (*Bassia latifolia*) when in season.

Dress. The garments commonly worn by men are the *dhotī* or waist-cloth and the *chādar* or loose cloth worn over the shoulders;

those who can afford it wear a *pirān* or coat. Among the strict Farāzi Muhammadans of Eastern Bengal, the *dhotī* is worn as a *lungī* or kilt, and is frequently of coloured cloth. Muhammadans wear a skull-cap, and Hindus a *pagrī*. In Bihār the poorer classes wear only the *dhotī*, and the *pagrī* is reserved for special occasions. For women the *sārī* is almost universal, one end being worn over the head and shoulders and fastened to the waist-piece; a bodice is added by those who can afford it, and is commonly worn even by women of the poorest class in North Bihār. In the towns the men wear an English shirt over the *dhotī*, the tails hanging loose, and a *chādar* over the shoulders; English socks, loose slippers or shoes, and an umbrella complete the costume. In the fields the agriculturist is content with an exiguous rag round his loins, and in Eastern Bengal a large wicker shield, and in Orissa a wicker hat, protects him from the weather. Girls up to the age of three and boys up to five years generally go naked. All but the very poorest women wear ornaments on wrist, neck, and ankle; these are generally of silver, brass, or lac.

Dwellings.

The houses in Lower Bengal are not congregated into villages, but each homestead stands in its own orchard of fruit and palm trees. The sites have been laboriously raised by excavation, which has left tanks in every compound; and the houses are erected on mud plinths and built round a courtyard with wooden or bamboo posts and interlaced walls of split bamboo, with thatched roofs resting on a bamboo framework. The whole is encircled with a bamboo fence, and sometimes by a moat and a thorny cane or cactus hedge. In Bihār the compounds are smaller, and where the fields are low the houses cluster thickly on the raised village sites; the walls are of mud and the roof tiled or thatched. In the uplands of Bihār, and in Chotā Nāgpur and Orissa, the homesteads are separate, though they generally adjoin one another; each house is surrounded by a well-manured patch of castor, tobacco, or some other valuable crop.

Disposal of the dead.

The Hindus bury small children who die during the first year after birth; all others are nominally burnt, but where fuel is scarce the cremation is often far from complete, and sometimes consists only in putting a few lighted sticks in the mouth and on the face, after which the corpse is thrown into the nearest river. In tracts near the Ganges it is the practice to carry dead bodies to burning *ghāts* on its banks, and in all parts it is considered right that the ashes and main bones should be thrown into the sacred stream. The Muhammadans

bury their dead, and so do the Jugis of Eastern Bengal and various sects of ascetics, and also the low castes and most aboriginal tribes. The Jugis place the corpse in a sitting position, with the legs crossed in the conventional attitude of Buddha, and the face turned towards the north-east.

Amusements and festivals.

The chief amusement of the people lies in attending the fairs which are held all over the Province. These gatherings are at stated seasons, generally in connexion with some bathing festival or other religious ceremony, and are attended by numerous hawkers, who set up booths for the sale of miscellaneous articles, by religious mendicants, jugglers, conjurers, actors, and musicians, all of whom contribute their quota to the entertainment of the crowd. Every market is thronged by gaily dressed crowds, who exchange the gossip of the day and discuss the latest *cause célèbre* while making their weekly purchases. The great annual religious festivals afford an excuse for merry gatherings, expecially at the New Year in April, when numbers congregate in the fields and amuse themselves with wrestling, hook-swinging (which now takes the form of a merry-go-round), and gossip. Every one goes mad with merriment at the Holī festival, and many Musalmāns enjoy the fun as much as the Hindus. Their own religious festivals are attended by devout worshippers; they are very fond of religious discussions, and immense crowds gather when famous Maulvis are pitted against each other to argue some knotty point of law or practice. Football is by far the most popular outdoor game, and huge crowds assemble on the Calcutta *maidān* to watch games under Association rules, at which Bengali boys are remarkably proficient. Among the aboriginal tribes hunting, cock-fighting, bull-baiting, drinking bouts, and saturnalian dancing are the chief amusements.

Nomenclature.

Hindu names are threefold. The third name is a family or caste title, such as, among others, Mukhopādhyāya (contracted to Mukharji) or Achārjya in the case of a Brāhman, Dās for a Kāyasth, Singh for a Rājput. The first two names are appellative, and the middle name is often dropped in actual intercourse. In Bihār there is generally no middle name. Common affixes denoting a town are *-ābād*, *-pur*, and *-nagar*; *-garh* means a fort, *-ganj* a market, *-gaon* or *-grām* a village, and *-bāgh* a garden: e.g. Murshidābād, Chāndpur, Krishnagar, Rohtāsgarh, Sirājganj, Bangaon, Kurigrām, Hazāribāgh.

Agriculture. General conditions.

The general characteristics which distinguish agricultural conditions in Bengal are a regular and copious rainfall, a fertile soil, and a dense population subsisting on the produce of the

land; but within the Province conditions are by no means uniform, and the important factors of soil, surface, and rainfall vary widely in different localities. The soils may be classed as either gneissic, old alluvium, or recent alluvium, the first two classes being found for the most part to the west, and the last to the east, of the 88th degree of longitude, which passes a few miles west of Calcutta and Darjeeling. The gneissic tract comprises the Chotā Nāgpur plateau and portions of the neighbouring Districts. Laterite soils are to be found sloping upwards towards the interior from beneath the old alluvium of Orissa and of West Bengal, and overlying part of the Chotā Nāgpur plateau. For agricultural purposes the whole of this western tract, comprising the sub-province of Bihār with the exception of Mālda District*, the Chotā Nāgpur Division, and the Burdwān Division with the exception of Hooghly and Howrah Districts, may be distinguished from the eastern tract of recent alluvium which includes the excepted Districts, the Rājshāhi*, Presidency, and Dacca* Divisions, the greater part of the Chittagong Division*, and the coast-line of Orissa. The gneissic, laterite, and old alluvial soils are alike mainly dependent upon artificial manures to maintain their fertility, whereas the recent alluvium is periodically fertilized by fresh deposits of silt from the overflowing rivers. The latter process is most active in Eastern Bengal, in the deltas of the Ganges and the Brahmaputra, whose waters possess the fertilizing properties of the Nile. Soils.

The conformation of the surface in the old and the new alluvium is widely different, the former being in process of denudation and the latter of formation. In the tract covered by new alluvium the periodical deposits of river silt maintain a perfectly level surface, which is eminently adapted for rice cultivation. The surface of the old alluvium, on the other hand, is broken by the scouring action of the rivers and of surface drainage, and the level of the country rises and falls in parallel waves at right angles to the watershed, the crest of each wave lying midway between two rivers. In order to make this undulating surface fit for rice cultivation, an elaborate system of small terraces and low embankments has to be constructed to hold up the rain-water. Where the gradient is steep, the expense of this terracing is prohibitive, and on such slopes rice is generally replaced by some less thirsty crop. Surface.

There are of course local exceptions to this broad classification of soils and surface conditions. In North Bihār, for instance, there are numerous saucer-shaped depressions, some-

times of considerable extent, in which rice thrives. The soil in these depressions is generally a strong clay, with a much smaller admixture of sand than is found in the higher uplands which mark the deposits of some ancient river. Again, in the broad belt of hilly country which surrounds the Chotā Nāgpur plateau, rice can be grown only in the valleys. The hill slopes are steep, and are covered with forest and dense undergrowth, except where they have been artificially cleared. Scanty crops of millets and pulses are raised in patches on the hillsides; and where the forest has been recently cleared, the primitive form of nomadic culture known as *jhūm* is practised, as it is also in the Chittagong Hill Tracts*.

Rainfall and humidity.

The distinction between the east and west of the Province, due to the difference in soils and surface, is accentuated by the unequal distribution of rainfall, which is generally far less regular and copious in the west than in the east. The annual fall in the western tract averages only 52 inches, as compared with 73 inches in the east. Rain commences much earlier in North and East Bengal than it does farther west, and heavy showers in April and May facilitate the cultivation of jute and early rice. Moreover, the average yearly humidity in the east, including Orissa, is 86 per cent., as compared with only 74 per cent. in the west of the Province.

Systems of cultivation.

Not only do the eastern Districts receive a great deal more rain, but, owing to the annual overflow of the great rivers that traverse them, they remain practically under water for six months in the year, and the people live on little island mounds and can move about only by boat. The surface of this tract is low and flat, and much of it is covered with huge marshes where rice and jute luxuriate. In fact, in the east of the Province rice and jute are grown almost exclusively, the former occupying two-thirds, and both together no less than three-fourths, of the gross cropped area.

In the west all this is changed. Rice is still the principal crop, but the rainfall is often insufficient to bring it to maturity, and has to be supplemented by artificial irrigation; fortunately the broken surface admits of water storage, and there are numerous small streams which can be dammed. The products are far more varied; there is very little jute, and rice accounts for only half the cultivated area, the other crops most extensively grown being maize, barley, wheat, oilseeds, *maruā* (*Eleusine coracana*), and gram. The most striking contrast to the monotony of cropping in East Bengal is furnished by West Bihār, where an astonishing variety of staples is raised, and

where it is by no means unusual to find four crops, such as gram, wheat, sesamum, and linseed, grown together in the same field.

Shifting cultivation. Reference has already been made to the nomadic form of cultivation locally known as *jhūm*. A piece of forest land, generally on a hill-side, is selected in April; the luxuriant undergrowth of shrubs and creepers is cleared away, and the felled jungle is left to dry till May and is then burnt. At the approach of the rains, small holes are made, and into each is put a handful of mixed seeds, usually cotton, rice, melons, pumpkins, maize, and yams. The crops ripen in succession, the harvest ending with the cotton in October. After a year or two the ground becomes choked with weeds and is abandoned for a new clearance, where the same process is repeated.

In the mountains. In the Darjeeling Himālayas steep mountain slopes are terraced and revetted with stone for rice cultivation, wherever water is available for irrigation; elsewhere the mountain-sides are sown with maize or millets. In the Rājmahāl hills the level crests are cultivated with the ordinary plains crops, and it is not uncommon in these parts to find rice flourishing on a hill-top.

Agricultural population. More than 56 millions, or 71 per cent. of the entire population of Bengal, are supported by agriculture; and of every 100 agriculturists 89 are rent-paying tenants, 9 are agricultural labourers, and 2 live on their rents. The proportion of field-labourers varies widely in different parts, being as high as 16 per cent. of the agricultural population in the Patna Division, and as low as 2 per cent. in the Dacca Division*. The agriculturists are far better off in the east of the Province than in the west. Not only are their profits much higher, especially from the very lucrative jute crop, but they enjoy a far larger measure of rights in the soil.

Statistics. No record is maintained in Bengal of the cropping of each field from year to year, and accurate statistics of agriculture are not available. The District officers furnish periodical estimates to the Agricultural department of the areas in each District under each of the more important crops, and it is upon these estimates that the agricultural statistics of the Province are based. These are not sufficiently accurate to form the basis of a reliable comparison between the results of successive years, except in the case of such crops as jute and indigo, to which special attention is devoted. Such as they are, they apply to the whole of British territory, excluding the Chittagong Hill Tracts* and the Sundarbans. They show that

of the total area[1] of 146,132 square miles, 76,454 square miles, or 52·5 per cent., were cropped in 1903–4. Of the remainder, 4,372 square miles, or 3 per cent. of the whole, were covered with forests, 35,263 square miles (24·1 per cent.) were not available for cultivation, 19,470 square miles, or 13·3 per cent., were cultivable waste other than fallow, and 10,573 square miles (7·2 per cent.) were fallow. An area of 16,925 square miles, or 22 per cent. of the cultivated area, was returned as cropped more than once in the year.

Principal crops.

Food-crops occupy 82 per cent. of the gross cropped area; 6 per cent. is under oilseeds, 4½ per cent. under fibres, and sugar-cane and tobacco each occupy about 1 per cent. Of the food-crops, rice is by far the most important, as it occupies 54,690 square miles, or 71 per cent. of the net cropped area. Next come various cereals and pulses with 11½ per cent., and these are followed by maize (4 per cent.), wheat and barley (3 per cent. each), and gram and *maruā* (2 per cent. each). Among the non-food crops, jute (5 per cent.) occupies an area second only to that of rice. Of the oilseeds, rape and mustard, together covering 3,125 square miles, are grown most extensively.

Food-crops. Rice.

There are innumerable varieties of rice, each possessing special characteristics which adapt its cultivation to particular localities. They may all, however, be classified, according to the harvesting season, under three main heads: the winter rice, occupying 42,970 square miles; the early rice, 10,940 square miles; and the spring crop, 780 square miles.

The winter rice is grown on low land. A piece of high ground is usually selected for a seed nursery, ploughed in May or June after the first rain, and sown broadcast. In July or August the seedlings are transplanted to flooded fields, which have been ploughed and reploughed till the whole surface is reduced to mud, and the crop is harvested between November and January. In the swamps of Eastern Bengal, however, a variety of long-stemmed rice is sown broadcast after one or two ploughings; by harvest-time the fields are several feet under water, and the rice, which rises with the flood-level, is

[1] In Bengal as now constituted, the net cropped area was 54,138 square miles, or 49·1 per cent. of the total area of 110,217 square miles. Of the remainder, 4,419 square miles, or 4 per cent. of the whole, were covered with forests, 26,161 square miles (23·7 per cent.) were not available for cultivation, 16,421 square miles (14·9 per cent.) were cultivable waste other than fallow, and 9,078 square miles (8·3 per cent.) were fallow. Altogether 10,369 square miles, or 9·4 per cent. of the cultivated area, were returned as cropped more than once in the year.

reaped from boats, the ears only being cut. In West Bihār the fields are drained in September when the rice is flowering, and flooded when the grain is forming in October. It is this practice, known as *nigarh*, which makes rainfall or artificial irrigation in the beginning of October essential to a successful harvest.

The early rice is generally sown broadcast in April or May, though it is occasionally transplanted; the crop is harvested in August or September. Spring rice is grown on the low banks of rivers or on the edges of swamps. The seed is sown in a nursery in October and transplanted a month later; the crop is harvested in March and April. The yield per acre of cleaned rice is estimated at 11·02 cwt. for winter rice and 7·34 cwt. for the early and spring crops. This is the average yield for the Province; in the rich rice swamps of Eastern Bengal the return is at least half as much again, while on the sterile uplands of Chotā Nāgpur not half this estimate is realized. Unhusked rice or paddy yields about three-fifths of its weight as cleaned rice.

Other food-crops.

Maize occupies 3,125 square miles, mainly in Bihār and Chotā Nāgpur, and in Darjeeling District. It is a valuable food-crop, yielding 7·34 cwt. per acre; it is sown in June and harvested in September or October. Wheat and barley each cover about 2,344 square miles, and both are grown principally in Bihār, barley thriving best north of the Ganges, and wheat south of that river; both are sown in November and reaped in March. The out-turn of wheat is estimated at 8·81 cwt. per acre for Bihār, 7·71 cwt. for Bengal, and 4·04 cwt. for Chotā Nāgpur, the average for the Province being 5·87 cwt. The normal yield of barley is 7·88 cwt. per acre. Gram (*Cicer arietinum*) is a pulse which thrives on clay soils, and is grown on over 1,560 square miles, principally in Bihār and Central Bengal. It is in the ground from November to March, and yields about 7·88 cwt. per acre. *Maruā* (*Eleusine coracana*) occupies nearly 1,560 square miles in Bihār and Chotā Nāgpur. It is sown in July and reaped in November, and the average yield is 7·34 cwt. per acre. *Jowār* (*Sorghum vulgare*) and *bājra* or spiked millet (*Pennisetum typhoideum*) are grown in Bihār and Chotā Nāgpur; they are sown in July and reaped in November–December, and yield about 7·34 cwt. per acre. *Jowār* is grown as a fodder-crop in Central Bengal.

More than 1,562 square miles, principally in Bihār, are under various cereals and pulses, which are sown in November and reaped in March or April. Among these are the *chīna*

millet (*Panicum miliaceum*), peas, lentils, *kalai* (*Phaseolus radiatus*), *kurthī* (*Dolichos biflorus*), and *khesāri* (*Lathyrus sativus*). Some other cereals and pulses are sown in July and reaped in December. These occupy 1,953 square miles, and include *rahar* (*Cajanus indicus*), *gondli* (*Panicum miliare*), *kodon* (*Paspalum scrobiculatum*), a variety of *kalai*, and *urd* (*Phaseolus Roxburghii*).

Non-food crops. Jute. Jute is commercially the most important crop in the Province, and its cultivation is developing rapidly. In 1872 it occupied less than 1,560 square miles, while at the present time the normal area is probably not far short of 3,900 square miles, and the exports in 1900–1, a bumper year, were valued at 14 millions sterling. The tract in North and East Bengal which lies between 23° and 26° 30′ N. and 88° and 91° E. is by far the largest jute-growing area in the world. The crop is sown in April and reaped in August, and, after retting, the fibre is baled to save freight. The chief centres of the jute trade and baling are NĀRĀYANGANJ*, SIRĀJGANJ*, and CHĀNDPUR*. The average yield per acre is estimated at 10·71 cwt.

Oilseeds. The various oilseeds are commercially important, and collectively occupy nearly 6,250 square miles. Rape and mustard account for more than half this area, and are grown extensively in North Bengal and Mymensingh*. Linseed is commonly grown as a catch-crop after the winter rice has been reaped. Other oilseeds are *til* or gingelly (*Sesamum indicum*), castor, and *sarguja* or niger-seed (*Guizotia abyssinica*), the latter grown largely in Chotā Nāgpur. These are mostly spring crops, sown in October and harvested in March. Rape, mustard, and linseed yield about 4·41 cwt. per acre, and the other crops about 3·12 cwt.

Sugar-cane. Sugar-cane, with 1,020 square miles, is usually planted in February or March and occupies the ground for ten or eleven months; the normal out-turn is 22 cwt. per acre. The juice is boiled and sold as *gur* or jaggery, and is also refined into sugar; large refineries have recently been started at Ottur in Muzaffarpur, and elsewhere in North-West Bihār, where the cultivation of sugar-cane is to some extent replacing indigo.

Tobacco. Tobacco is grown everywhere in small quantities and occupies 780 square miles; it is cultivated on a large scale in Rangpur* and the neighbouring Districts of North Bengal, whence the leaf is exported to Burma and made into cigars. The produce varies from 4·41 to 8·82 cwt. per acre in Bengal, and from 11·75 to 14·69 cwt. in Bihār; it is sown in November and reaped in March.

Indigo occupies 390 square miles, chiefly in North Bihār, though it is still cultivated in Central Bengal; the area is shrinking, as the natural dye suffers from competition with the artificial substitute. Indigo is sown in March, and the leaf is cut in July and again in September; the yield of dye varies from 12 lb. per acre in Bengal to 20 lb. in Bihār. The general practice is for the planter to take a lease of a village, and then arrange with the cultivators to grow indigo, assisting them with seed and cash advances; though in some places the villagers grow it independently and sell it to the factory by weight. Indigo.

The poppy is grown in West Bihār, and to a small extent in Chotā Nāgpur, and occupies 390 square miles. It is cultivated with the help of Government advances, and the opium is sold at a fixed rate to Government, as will be described in the section on Miscellaneous Revenue. The seed is sown in November, and the crop is collected in March and April; the yield varies from 10 lb. to 18 lb. per acre. Cotton is little grown; there is none in the plains of Bengal proper, and elsewhere it occupies only about 125 square miles. One crop is sown in July and harvested in November, and another is sown in October and harvested in April. Tea is cultivated on a large scale only in JALPAIGURĪ*, DARJEELING, and CHITTAGONG*. In 1903 there were 422 gardens, with a total area of 210 square miles and an out-turn of 51,000,000 lb. The average yield from mature plants is 367 lb. per acre; but the out-turn varies in different parts, averaging 453 lb. per acre in Jalpaigurī*, 313 lb. in Chittagong*, and 288 lb. or less elsewhere. The value of the crop in 1901 was 1½ crores, and the average price per pound in the same year was 5¼ annas, compared with 7⅔ annas twelve years previously. This disastrous fall in prices is due mainly to over-production; but during the last two or three years there have been very few fresh extensions of tea cultivation, and it may be hoped that better times are in store for this important industry. *Gānja* (*Cannabis sativa*) is a Government monopoly and is grown on 1,100 acres in RĀJSHĀHI DISTRICT*; the yield varies from 10 to 21 cwt. per acre. It is sown in August and harvested in February. Poppy. Cotton. Tea. *Gānja.*

Among non-food crops grown in the rains are *san*-hemp and mulberry, the latter chiefly in MĀLDA*, MURSHIDĀBĀD, RĀJSHĀHI*, and BOGRA*. In the winter are grown condiments, such as chillies (*Capsicum frutescens*) and onions, the safflower, and oats, which are generally used for fodder. Turmeric is sown in June and harvested in March, and ginger is sown Miscellaneous non-food crops.

in June and harvested from December to February. The *pān* creeper (*Piper Betle*) is planted in May or June in a thatched enclosure, and the leaves are ready for picking in twelve months. Among other condiments are garlic, coriander, cumin, and aniseed. Large areas are given up to thatching grasses, such as *ulu* grass (*Imperata arundinacea*) and *kus* (*Saccharum spontaneum*). In the SANTĀL PARGANAS and parts of Chotā Nāgpur *sabai* grass (*Ischaemum angustifolium*) grows on the hilly slopes and is carefully preserved; it is used locally for twine and rope, and it is also extensively employed in the manufacture of paper. Reeds, such as the *hoglā* (*Typha elephantina*), *nal* (*Amphidonax Kaika*), and *sītalpāti* (*Phrynium dichotomum*), are extensively grown and woven into mats.

Manures. A strong prejudice exists against night-soil or bonemeal as manure, and chemical manures are practically unknown. Cattle-dung is used wherever it can be spared, but it is largely burned as fuel, and little or no use is made of the urine. The feeding of the cattle is also so poor that their dung is not rich in manurial constituents. House-sweepings are freely utilized, generally in the form of ashes. What little manure is available is mostly applied close to the homesteads for garden crops, and for maize, tobacco, castor, and poppy. Castor and mustard-cake are occasionally used as a top-dressing for sugar-cane and potatoes. In East Bengal rice straw is sometimes burnt as a manure, and sugar-cane, garden crops, potatoes, and tobacco are generally manured, though the quantity applied is very small. In Bihār refuse indigo is used with avidity where it is available in the neighbourhood of factories, and pond mud is very highly valued.

Rotation. Clay soils grow winter rice year after year; occasionally a catch-crop of *khesāri* is taken as fodder, or, if the land continues moist until harvest time, it may be ploughed and sown in East Bengal with *kalai*, and in Bihār with gram and peas or barley. Lighter soils generally bear two crops in the year—in the rainy season, early rice or jute in North and Lower Bengal, and maize or some of the inferior millets in Bihār or Chotā Nāgpur; in the winter a pulse or an oilseed in Bengal, and a mixture of various pulses and oilseeds with wheat or barley in Bihār. Potatoes often follow maize in Bihār, and jute or early rice in North and Lower Bengal, and jute itself is sometimes rotated with early rice. Sugar-cane is an exhausting crop and is generally rotated with rice. The mixture of pulses and cereals serves the purpose of rotation, as the pulses belong to the leguminous family and enrich the soil with nitrogen.

Among cultivated fruits are the mango (*Mangifera indica*), plantain (*Musa sapientum*), pineapple (*Ananassa sativa*), jack-fruit (*Artocarpus integrifolia*), guava (*Psydium pomiferum*), custard-appple (*Anona squamosa*), *līchī* (*Nephelium Litchi*), and several varieties of fig and melon. Many parts of East Bengal are studded with coco-nut plantations. The mangoes of Darbhangā and Mālda* enjoy a high reputation. Vegetables are everywhere cultivated in garden plots for household use, and also on a larger scale in the neighbourhood of towns. The favourite are the egg-plant or *baigun* (*Solanum Melongena*), ground-nut (*Trichosanthes dioica*), pumpkin (*Lagenaria vulgaris*), gourd (*Benincasa cerifera*), and *arum* (*Colocasia Antiquorum*) grown in the rains, while in the winter potatoes, yams, melons, and radishes are largely cultivated. Cauliflowers and cabbages are also common, and spinach and onions are universal. Potatoes are extensively grown on the rich soils bordering the Ganges in West Bihār, and in the Hooghly and Burdwān Districts of West Bengal; they yield about 2 tons to the acre. Fruits and vegetables.

There has been a steady increase of cultivation during the last twenty years, but the earlier statistics were so defective that they do not afford evidence of this increase. Tillage is extended by felling the forests on upland tracts and in the submontane *tarai*, by reclaiming the sandy islands which are constantly forming in the big rivers, by embanking lands in the littoral tracts, and by cultivating the swamps of Eastern Bengal, the level of which is being gradually raised by silt deposits. Increase in cultivated area.

An Agricultural Institute under the Government of India has been opened at PŪSA in Darbhangā District. Experimental farms under the superintendence of the Agricultural department are established at SIBPUR, BURDWĀN, and DUMRAON, and demonstration farms have recently been started at CHITTAGONG* and ANGUL. Experiments have been made with improved varieties of rice, wheat, sugar-cane, and potatoes, and with manures for these crops; the cultivation of potatoes has been extended, and Burdwān sugar-canes have been introduced into Bihār. Useful work has been done in the direction of stimulating the out-turn of raw silk, by training the rearers to eradicate pebrine and other diseases of the silkworm. An agricultural class is attached to the Sibpur Engineering College, but it has not been successful; it is to be moved to Pūsa. The department has recently extended its sphere of activity in many directions. Special investigations have been made into the alleged deterioration of jute, efforts have been made to extend the cultivation of cotton, aid has been given to indigo Agricultural department.

research operations, and an experimental farm has been started at Cuttack to show cultivators what can be done with water always at command. Besides this, agricultural associations, working in co-operation with the department, have been established in order to help it with advice, to disseminate agricultural knowledge by communicating the results of its operations to the people, and to awaken further interest in the development of the agriculture of the Province. A Central Association has been formed at Calcutta, and Divisional and District Associations are being formed in the interior, which will work in concert with this central body.

Indebtedness.

Loans are rarely taken from Government, and in 1903-4 the total sum amounted to only 3·6 lakhs, of which nearly half was advanced in Palāmau District. It is too early to pronounce an opinion on the prospects of the Agricultural banks which have recently been started; but 58 banks are now in existence, and some of them seem to be working successfully.

Little attention has been directed in Bengal to the subject of the indebtedness of the cultivators, and in the Province generally the question has never reached an acute stage. In a great part of Bengal proper a system akin to peasant proprietorship prevails, and the rich profits of jute cultivation are shared by all the cultivating classes. In Bihār and Chotā Nāgpur the peasantry are as a class impoverished, but there is little evidence to show the extent of their indebtedness. In Chotā Nāgpur and the Santāl Parganas, the Bengali money-lender at one time threatened to oust the improvident aborigines from their lands; but land transfer to Bengalis has now been prohibited, and the prohibition is strictly enforced at the time of rent settlement. In various parts of the Province a survey and record-of-rights are in progress, which aim at securing to the ryots the fixity of status and the immunity from arbitrary enhancement which the Tenancy Act prescribes, and the Settlement officers have made careful inquiries as to the extent of indebtedness in Gayā, Champāran, and Muzaffarpur Districts, where, if anywhere in the Province, it might be expected to be serious. The inquiries in Muzaffarpur and Gayā show that cultivators owe on the average Rs. 2-6 a head and cultivating labourers Rs. 1-5, and that indebtedness is decreasing. In Champāran the tenantry are badly off, and, during the decade preceding the settlement, 1·4 per cent. of the cultivators' holdings had been sold or mortgaged to money-lenders. The people are thriftless, and the majority are in debt to the *mahājan*. In Sāran only one-fifth of the cultivators are in debt, and their total indebtedness is

estimated at less than a crore, whereas the net profits of cultivation amount to over $3\frac{1}{2}$ crores. In the whole Province only 7,000 holdings were purchased by money-lenders in 1902, and there is no indication that the peasantry as a body are in danger of losing their lands to money-lenders. A common rate of interest is 36 per cent. per annum.

Agricultural implements.

The implements in universal use are the plough, harrow, sickle, and hoe, and they vary in size and shape according to the strength of the draught cattle in use, the texture of the soil, and the description of cultivation practised. The ploughs in Bihār are generally heavier and more effective than in Bengal, and work the soil to a depth of 5 inches, whereas those in use in North Bengal scratch the surface to a depth of only 2 inches. The Cuttack and Noākhāli* ploughs are very heavy, and the two sides are shaped like mould-boards, giving them the appearance of ridging ploughs. The Bihiyā sugar-cane mill, made in Shāhābād, and a similar type of mill made at Kushtia in Nadiā are the only improved implements which are really popular; they have largely superseded the native wooden mills.

Cattle.

The cattle are generally poor, especially in the east of the Province, where pasture is deficient; in the north-west some improvement has been effected by crossing with bulls imported from the United Provinces. The chief breeds of cattle are the Patna, Sītāmarhi, Bachaur, and Bhāgalpuri in Bihār, and the Siri and Nepāli in Darjeeling. These are worth from Rs. 30 to Rs. 40 a head, though the Patna milch-cattle, which were crossed half a century ago with an imported short-horn strain, sell for Rs. 80. Good buffaloes are to be found in the forests and swampy island flats, and are much prized for their milk. The only horses bred in Bengal are the weedy indigenous ponies or *tats*, which are found everywhere and are worth from Rs. 50 to Rs. 60 each. Goats abound, but are very small. Sheep are bred in Bihār and Chotā Nāgpur; the Patna breed is the best.

Pasture is plentiful in the neighbourhood of the few forests and on the river islands; but it is very scanty elsewhere, especially in Bengal proper, where every inch of land grows rice and the cattle have to be content with such scanty herbage as the road-sides, tank banks, and field boundary ridges afford. Cart bullocks and plough bullocks are partly stall-fed on chopped rice straw when at work, and milch-buffaloes are carefully tended; but the cattle generally are under-fed and miserably housed, and no attempt is made to improve the breed. In Bihār and elsewhere dedicated bulls roam the country-side

and feed on the fat of the land, but they are not selected for breeding. The cattle suffer from rinderpest, foot-and-mouth disease, haemorrhagic septicaemia, and malaria, and occasionally from anthrax. The Civil Veterinary department trains young men at the Bengal Veterinary College at Belgāchia, and distributes them to the District boards and other bodies requiring their services; the total number of passed students from this college who were employed as veterinary assistants or in other capacities under these bodies and under Government in 1903–4 was 46.

Fairs. There are a number of cattle and horse fairs, the largest being those at SONPUR, SĪTĀMARHI, SŪRI, and KĀLIMPONG. At these fairs cattle shows are held, and prizes are given for the best specimens exhibited.

Irrigation. The copious and regular rainfall renders irrigation far less essential than in other parts of India, and it is almost unknown in a great part of Bengal proper. Statistics are available only for the areas irrigated from Government canals; and in 1903–4 less than 2 per cent. of the rice crop and only about 2 per cent. of the wheat crop were supplied with water from this source. The principal crops irrigated are winter rice, wheat, barley, poppy, sugar-cane, and potatoes. Of these, winter rice is by far the most important. It is not irrigated in East or North Bengal, and but seldom in the Presidency Division, while in North Bihār it is irrigated only near the foot of the Himālayas, where the hill streams can be dammed without much difficulty. In Orissa there are large irrigation works, but they are not much resorted to in normal years. In the Burdwān and Chotā Nāgpur Divisions, however, and in South Bihār, the natural supply of rain-water is insufficient, and rice can be grown only with the aid of artificial irrigation. This is chiefly necessary in October; but if the rains are late in starting, water is also required for the seed-beds, and again at the time of transplantation. Wheat and barley are commonly grown without irrigation, except in the vicinity of homesteads in North Bihār, where they get two or three waterings from wells in November and December. The poppy is generally irrigated from wells and requires weekly watering. Sugar-cane is irrigated, except in North Bihār and North Bengal; it is watered once a fortnight during April, May, and June, and once a month in November and December. Potatoes are irrigated once a fortnight in Burdwān, Hooghly, Patna, and Cuttack, but not usually elsewhere.

Canals. Bengal possesses three important systems of irrigation canals

—the SON, the ORISSA, and the MIDNAPORE. The Son Canals in Bihār are fed from the Son river by means of a weir at DEHRĪ; they supply water to Shāhābād District on the west and to Gayā and Patna Districts on the east. The system comprises (1903–4) 367 miles of main and branch canals, of which 218 are navigable, with 1,217 miles of distributaries, and 3,237 miles of village channels which are private property. The supply of water available for the *kharīf* or autumn irrigation is about 6,500 cubic feet per second. For the *rabi* or spring crops the supply is always ample. The demand fluctuates greatly according to the rainfall in September and October; the area irrigated in 1903–4 was 790 square miles, compared with 756 square miles in 1902–3. In the hot season the supply of water is very limited, but there is usually sufficient for the irrigation of about 25,000 acres of sugar-cane.

The Orissa Canals are fed mainly from the Mahānadī river, but derive part of their supply from the Brāhmanī and Baitaranī, there being in all seven anicuts or weirs. The country served by these canals lies chiefly in the delta of the Mahānadī, and, being liable to inundation, it has been necessary to protect the irrigated tracts by marginal flood embankments. Four main canals—the Tāldanda, the Kendrāpāra, the Māchgaon, and the High Level—comprise 301 miles of main and branch canals, of which 205 miles are navigable, and 1,166 miles of distributaries. There are no village channels. The supply which can be given in the *kharīf* season is 4,550 cubic feet per second. During the *rabi* season there is very little demand for water. Sugar-cane is little cultivated in these parts.

The Midnapore Canal is supplied from the Kāsai river. It is 72 miles in length and is navigable throughout, and possesses 267 miles of distributaries and 30 miles of village channels. The capacity of discharge is 1,500 cubic feet per second. The supply at the end of the *kharīf* season is, however, uncertain, and in a dry autumn there is frequently difficulty in meeting the demand for water. There is little irrigation in the *rabi* season.

In the north-west corner of Champāran District the TRIBENĪ CANAL is being constructed as a protective work. It is designed to carry enough water to irrigate about 178 square miles.

Table III at the end of this article (p. 172) gives the principal figures connected with these systems of canals; the falling off in navigation tolls is due to the development of railways.

Minor works.

The 'minor' irrigation works maintained by Government are the Sāran, the EDEN, and the Tiar or Madhuban canals. The Sāran canals have a head sluice on one of the side channels of the Gandak river. There is no weir, and, owing to alterations in the main channel, it is very difficult to feed the canals, which for the present are closed. The Eden canal takes off from the Dāmodar river in Burdwān. It was intended primarily to supply fresh water to some old river-beds as a sanitary measure, but it is also used for the irrigation of about 42 square miles. The Tiar canal in the north of Champāran is supplied from the stream of the same name, and can irrigate 9 square miles.

Water rates.

The sale of water for irrigation is regulated by Act III (B.C.) of 1876, which provides that it shall only be supplied on a written request. For rice, leases are entered into for a term of years in which the lands to be irrigated are specified in detail; the quantity of water to be given is not mentioned, but there is an implied obligation to supply what is needed. In charging for the irrigation of *rabi* and sugar-cane, it is not practicable to determine beforehand precisely which lands are to be supplied, and the principle of the Northern India Act is adopted, i.e. an acreage rate is charged on those fields which are actually irrigated.

Indigenous irrigation.

The principal private irrigation works are reservoirs and water channels. This form of irrigation is mainly practised in the gneissic and old alluvial tracts, where the broken surface facilitates water-storage. In hilly country the reservoir is made by throwing an embankment across a drainage channel; but on more level ground the surface-water is confined in an artificial catchment basin, of a more or less rectangular shape, by an embankment raised on three sides of the rectangle. Artificial channels are dug parallel to the beds of rivers which have a steep gradient, to irrigate high lands down stream; many of these are large works with numerous branches and distributaries. Comparatively little use is made of wells for irrigation, though a good deal of land along the banks of the Ganges in Patna and Muzaffarpur Districts is watered from earthen wells, and small masonry wells are to be found near the houses in Bihār, and are used for irrigating poppy and other crops. The cost of a masonry well varies from Rs. 100 to Rs. 300 and of a *kachchā* well from Rs. 2 to Rs. 5. Tanks are used to a considerable extent for irrigating rice, especially in Burdwān.

Water-lifts.

Numerous water-lifts are used, such as the lever and bucket or skin bag, the swing-basket, and the spoon irrigation lever. The first-mentioned lever is fitted to a forked tree or masonry

pillar, and counterpoised by clods of earth. When bullocks are used, they are yoked to a rope which passes over a pulley carried on a cross-beam, supported on two masonry pillars. The basket is swung by two men with the aid of ropes tied to the corners, and is used for raising water from a river or tank. The spoon irrigation lever is a canoe-shaped dug-out working on a pivot. When the level of water is very low, two or more successive lifts are required.

Fisheries.

The importance of the Bengal fisheries may be gauged from the fact that 1·6 per cent. of the population are engaged in catching, curing, and selling fish, a percentage which rises to 2·6 in the Presidency, Rājshāhi*, and Dacca* Divisions; moreover, one cultivator in every twenty is returned as a fisherman also. The waters of the Bay, the rivers, and swamps swarm with fish, and every ditch and puddle furnishes small fry to eke out the frugal diet of the people. The best salt-water fish are the *bekti*, *tapsi* or mango-fish, mullet, pomfret, and sole. Inland the *hilsa* (*Clupea ilisha*) is found in shoals in the Ganges, while the *rohu* (*Labeo rohita*) and the *kātāl* (*Catla buchanani*) abound everywhere, as do also innumerable other varieties much esteemed by the Bengalis; prawns and crabs are caught in myriads. The mahseer is found in the higher reaches of the rivers which debouch from the Himālayas, and in some of the rivers of the Chotā Nāgpur plateau.

The Bengali is a very clever fisherman. In the Bay of Bengal he practises deep-sea fishing, drying his catch ashore on stakes driven into some sandy beach. The larger rivers are trawled from a sailing boat, and the smaller streams are fished from weirs. The tanks and ditches are periodically dragged, the fish at other times being angled or caught in a cast-net. Every streamlet is studded with hundreds of wicker fish-traps, while prawn cages are ubiquitous. The wonder is that any living fish escapes, so persistent and remorseless is the hunt for the finny tribe. Every other interest is subordinated to its pursuit, and not only is navigation impeded, but the drainage of the country is blocked by the obstruction of every channel and outlet.

The right of fishery in all but the largest rivers has generally been alienated by Government to private persons, having been included in the 'assets' on which the permanent settlement of estates was based, but in some cases the fishery itself is a separate 'estate.' In tanks the right of fishing vests in the owner or occupant; in the Bay and large rivers fishing is free to all.

Rents, wages, and prices. Rents.

The conditions which determine the rent paid by the actual cultivator to his immediate landlord vary widely in different parts of the Province, and even in different estates. In some large estates it is paid according to rates current throughout a village, while in others lump-rents prevail. In Orissa and the Santāl Parganas the rents have been fixed by Settlement officers. In Bengal proper lump-rents generally are paid, except for newly reclaimed lands, and inquiry often fails to detect the existence of any standard rates known to the people. In large estates in Bihār, on the other hand, it is usual to find the rent calculated according to rates applied to different classes of soil or to particular crops. Generally speaking, the principal factors which affect the incidence of rent are the fertility of the land, the density of population, the antiquity of the holding, the social status of the tenant, and the position and character of the landlord. Where the population is dense, there is a keen demand for arable land and rents rule high. On the other hand, rents which were fixed some years ago are lower than those recently settled, because prices and rent rates have steadily increased for many years. A Brāhman, again, usually pays a lower rate than a man of low caste. The highest rents prevail where the landlord is a petty proprietor or a middleman resident in the village. Specially high rates are usually paid for land under special crops, such as sugar-cane, *pān*, mulberry, and poppy. The cultivators have been protected from arbitrary rent enhancement and eviction by the Bengal Tenancy Act of 1885; but, owing to the apathy and ignorance of the peasantry, the Act has remained a dead letter over a great part of the Province. In Bihār, especially, the tenant is still very much at the mercy of his landlord, who rarely gives him a written lease. In Eastern Bengal conditions are different. Documents are far more freely interchanged, the demand for cultivators to till the land is keen, and the tenant has the best of the bargain.

Average rates of rent.

Little accurate information is available in Bengal regarding rates of rent, but the following are the average rates per acre ascertained by Settlement officers. In Eastern Bengal Rs. 4 is paid in Tippera*, and Rs. 5-12 in Chittagong*, where rents rule very high; the ordinary minimum and maximum rates probably range from Rs. 3 to Rs. 12. In Orissa rents vary from Rs. 1-8 to Rs. 4, the average being Rs. 2-8. In Central Bengal they run from Rs. 3-4 to Rs. 8-11, the average being Rs. 5-8, and in North Bihār the limits are Rs. 1-14 and Rs. 4-5, the average being about Rs. 3-2 an acre. In Chotā Nāgpur the

rents are much lower, varying from 8 annas to Rs. 2, with an average of Rs. 1–4, while in the Santāl Parganas the average is Rs. 4–4, the limits being Rs. 3–12 and Rs. 6–12. The rates of rent for special crops occasionally rise much higher, the maximum rates recorded for tobacco being Rs. 37–8; for sugar-cane, Rs. 18; for potato and poppy, Rs. 20; and for *pān*, Rs. 75.

Rent is extensively paid in kind in Gayā, Shāhābād, and Patna Districts, where the character of the country renders the maintenance of an elaborate system of irrigation necessary; but to a less extent such rents are to be found throughout the Province. Different methods of division prevail; sometimes the grain is divided on the threshing-floor, or the standing crop is appraised, while sometimes a fixed amount of grain is paid irrespective of the yield. In Bengal newly reclaimed lands are often tilled by temporary settlers, who contract to raise a crop and give the landlord half of it; they erect temporary shelters for the season, and throw up the land at the end of it. **Produce rents.**

Wages for all kinds of labour are lowest in Bihār and highest in Bengal, Orissa occupying an intermediate position. The actual daily rates for skilled and unskilled labour in the different sub-provinces and in the three chief cities are shown below:— **Wages.**

	Sub-provinces.			Cities.		
	Bengal.	Orissa.	Bihār.	Calcutta.	Dacca*.	Patna.
	A. P.	A. P.	A. P.	A. P.	A. P.	A. P.
Skilled labour.	7 10	5 3	4 9	8 11	6 7	3 0
Unskilled do. .	4 1	2 9	2 6	...	3 4	2 0

In Bihār there has been a nominal rise of 7 per cent. in the wages of unskilled labour during the last decade, and in Bengal of 14 per cent.; in Orissa, on the other hand, wages are reported to have fallen 12 per cent. during the same period. In Patna city they have increased by 9 per cent., while a decrease of 2 per cent. has taken place in Dacca*. The wages of skilled labour have increased by 11 per cent. in Bihār, 15 per cent. in Orissa, and 5 per cent. in Bengal; they have increased in Calcutta by 20 per cent., while in Patna and Dacca* they are reported to have fallen by 5 and 13 per cent. respectively.

The remuneration of village servants is fixed by custom. In Bihār each artisan takes his recognized share of grain when the crop has been reaped and brought to the threshing-floor; he often holds in addition a small plot of land rent-free, in **Payment in kind.**

remuneration for services rendered to the *zamīndār*. In Orissa the village employés serve a fixed circle of from 30 to 50 families and receive small monthly payments of grain and money, with other customary perquisites. This system is not found in Bengal proper, where the village organization, with its complete equipment of servants and artisans, seems to have never been developed.

The rise in wages has not kept pace with the increase in the price of food-grains, for, whereas during the last twenty years the price of rice has risen by 38·5 per cent., the wages of unskilled labour have risen by only 15 and of skilled labour by 25·4 per cent. during the same period. The fact is that wages are governed largely by custom, and it seems probable that the increased demand for labour due to the development of railways and to industrial expansion has had more to do with the rise in wages than the increase in the price of food-grains. The payment of day-labourers and village artisans and servants in kind also tends to keep down wages in spite of high prices.

Prices. The average prices of certain staples at important centres during the last three decades and for the year 1903–4 are shown in Table IV at the end of this article (p. 173). The increase during the years 1890–1900 was due to the famines of the decade, which caused a heavy drain of food-stuffs from this Province.

Material condition. The masses are much better off and enjoy a more generous diet in Lower Bengal and Orissa than in Bihār and Chotā Nāgpur. The annual cost of living per head of an average adult cultivator is estimated at Rs. 15 in Bihār, Rs. 20 in Chotā Nāgpur, and Rs. 35 to Rs. 45 in Lower Bengal and Orissa. An ordinary hut costs from Rs. 5 to Rs. 40, and a well-to-do family has three or four of them. The furniture consists of mats, one or two wooden boxes, bamboo baskets, earthen pots and pans, and brass utensils. To dress himself and his family costs a well-to-do cultivator from Rs. 10 to Rs. 15 per annum, while he may spend Rs. 5 or Rs. 10 in brass and silver ornaments. The landless day-labourer is generally attached to the household of his master, and lives in a wretched hut on his employer's land. He gets one full meal at midday and a scanty breakfast and supper.

The middle classes comprise those who live on land rents, members of the learned professions, merchants and shopkeepers, and persons in Government or private employment. The joint family system which furnishes a common fund for all the members is a relief to those earning small salaries.

Their food consists of rice, pulses, vegetables, fish, *ghī*, oil, milk, sugar, flour, and sweetmeats, and occasionally meat. The ornaments of a married woman of this class are usually not worth more than Rs. 50. One or two bedsteads, a few cane or wooden stools, a few cheap boxes, some coarse mats, together with a number of brass and bell-metal utensils, make up the furniture of an ordinary house, except in the towns, where it may include a table, a couple of chairs, and one or two benches. The cost of living in Calcutta is estimated at Rs. 50 to Rs. 70 a month for an ordinary family, and in the country at from Rs. 30 to Rs. 50.

There is no doubt that the standard of living has improved of late years in North and East Bengal, where better clothes are worn, earthenware is giving place to brass-ware, and vegetable oils to kerosene. In Bihār progress is slower, though the improvement in communications has facilitated migration to Bengal, where the remarkable industrial expansion of recent years has created a great demand for labour. The same causes have benefited Chotā Nāgpur, but here the people are primitive in their habits, and they have not yet taken to growing produce for export on a large scale; the Bengal-Nāgpur Railway has, however, done much to open up this part of the country. The middle classes suffer from high prices, unless they have an interest in land, as many of them have; and this is probably the class which has made least progress.

The history of the Government forests in Bengal is similar to that of the forests in other parts of India. When the East India Company first began to acquire sovereign rights, its officers were naturally impressed by the great extent of the forests, rather than by the benefits to be derived from them; and for many years their sole aim was to expedite their conversion into cultivated fields. Many of the best forests were alienated, and reckless exploitation ran riot. The work of destruction was hastened by the wasteful form of shifting cultivation known as *jhūm*, the constant occurrence of forest fires, and the direct and indirect demands for railway construction. But with the growing scarcity of valuable timber, and the observed bad effects upon climatic conditions of the wholesale removal of forest growth, a reaction set in; and scientific forest management and conservancy in Bengal dates from the year 1854, when the first Conservator of Forests was appointed. As in other Provinces, rules were then laid down for the control of forest matters, which eventually led up to the passing of the Indian Forest Act (VII of 1878). Forests.

Forest conservancy. Under this enactment land at the disposal of the state may be divided into 'reserved,' 'protected,' and 'village' and 'unclassed' forests, and powers are also taken for the issue of orders with the object of preventing the destruction of private forests. No such orders have hitherto been issued in Bengal, and there are no 'village' forests. The arrangements for conservancy are most complete in the case of 'reserved' forests. These are permanently demarcated; private rights, where they exist, are defined, commuted, or provided for elsewhere, and every effort is made to prevent damage by fire. Timber is extracted from the greater part of these forests in accordance with scientific working-plans, and the regeneration of suitable species is carefully attended to. In 'protected' forests the arrangements are less elaborate: private rights are recorded but not defined, and the efforts of the Forest department are directed mainly to the prevention of reckless felling and to securing to Government its dues on account of forest produce extracted. As cultivation extends, the area of these 'protected' forests tends to become more and more restricted. There are also, in the Chittagong Hill Tracts*, certain waste lands at the disposal of Government, in which even this modified control is considered inadvisable. The forests in such tracts are known as 'unclassed,' and their management is regulated by executive orders.

Area and control. In consequence of the permanent revenue settlement, there is very little land at the disposal of Government in the greater part of Bengal proper and Bihār, and the forests there have long since yielded to the axe and the plough. Owing to the moisture-laden winds of the south-west monsoon, and the generally low and level surface of the country, which prevents rapid draining and denudation, their disappearance has not been accompanied by the ill effects which have supervened in other less favourable conditions. Except in a few limited areas, vegetation is sufficiently plentiful; and the bamboos, palms, and fruit trees grown by the villagers suffice to meet all their ordinary requirements. For other purposes, however, such as sleepers for railways, timber for bridges and large buildings, tea boxes, and to meet the fuel demand in cities, the only important sources of supply, with the exception of the forests in a few Native States and the timber imported from Nepāl or from abroad, are the Government forests which have been 'reserved' or 'protected' in the tracts lying outside the area which was permanently settled: namely, in Chotā Nāgpur, the Santāl Parganas, the Jalpaigurī Duārs*, Darjeeling,

Chittagong*, Angul, and Purī Districts, the Chittagong Hill Tracts*, and the Sundarbans. The Government forests in these tracts[1] in 1904 covered an area of 9,581 square miles, of which 6,014 square miles were 'reserved,' and 3,567 'protected,' while there were also 3,753 square miles of 'unclassed' forests in the Chittagong Hill Tracts*. With a few exceptions, the whole of this area is under the control of the Forest department of the Province. At the head is a Conservator of Forests, and under him are deputy, assistant, and extra-assistant Conservators, who are in charge of or attached to Forest 'divisions' (twelve in number), and a subordinate staff of rangers, deputy-rangers, and foresters. In matters of general Forest administration, the divisional officer is the assistant of the Collector of the District, or in some cases of the Commissioner, while as regards technical matters, accounts, establishments, and the like, he is directly under the Conservator.

Character of forests.

The forests of Bengal contain a great number of species, and their composition is very varied in character. The principal types are briefly: (*a*) The tidal forests situated in the delta of the Ganges, known as the Sundarbans, where the *sundri* (*Heritiera littoralis*) is the most important species; (*b*) the dry forests of Chotā Nāgpur and the Santāl Parganas, where the *sāl*-tree (*Shorea robusta*) largely predominates; (*c*) the forests in the hilly portions of Orissa, where the *sāl* occurs sometimes in pure forests, but usually in conjunction with several species of *Terminalia*, *Diospyros*, *Albizzia*, *Dalbergia*, and bamboo; (*d*) *sāl* forests in the Duārs* and *tarai* at the foot of the Eastern Himālayas and on the drier spurs of the lower hills, and those of *Dalbergia Sissoo* and *khair* (*Acacia Catechu*) on the gravel and boulder deposits along the rivers of that part of the country; (*e*) the hill forests of British Sikkim and Bhutān, stocked chiefly with oaks, magnolias, and rhododendrons; and lastly (*f*) the Chittagong* forests, of which bamboos, *jārul* (*Lagerstroemia Flos Reginae*), and *gurjan* (*Dipterocarpus turbinatus*) are the most important products.

Method of exploitation.

Timber and other forest produce are, for the most part, now removed by purchasers, and departmental working is resorted to only for the supply of *sāl* sleepers to railways, and of fuel to the Commissariat department at Darjeeling. Water-carriage

[1] The Jalpaigurī Duārs, Chittagong, and the Chittagong Hill Tracts have been transferred to Eastern Bengal and Assam. The Government forests in the present area of Bengal cover 7,806 square miles, of which 4,244 square miles are 'reserved,' and 3,562 square miles are 'protected.'

is little used save in the forests of Angul, the Sundarbans, and the Chittagong Hill Tracts*, and to some extent in the Jalpaigurī* and Buxa* forests. The practice of shifting cultivation, which is most injurious not only on account of the destruction of forest growth, but also because the fires employed for clearing the felled areas often spread in all directions, is now almost everywhere forbidden, though it is still allowed in the 'unclassed' forests of the Chittagong Hill Tracts* and in the 'protected' forests in the Santāl Parganas. The most valuable minor products of the forests are bamboos, *golpātā* (palm) leaves, mica, honey and wax, thatching grass and *sabai* grass (*Ischaemum angustifolium*), the last named being largely used in the manufacture of paper.

The experiment of cultivating rubber (*Ficus elastica*) has been tried in the Darjeeling *tarai*, the Tīsta valley, and Chittagong* with some success, but the plantations are still on a very small scale.

Fire-protection.

Measures for protecting the forests from fire were commenced in 1872, and have now been extended to all the more valuable areas. At the beginning of the dry season fire-lines, as well as all boundaries and forest roads, are cleared of grass and jungle, and a number of fire-watchers are employed to assist the ordinary protective establishment in patrolling the forests. In many parts, e.g. in the Sundarbans, the forests are not inflammable, and in others, owing to the damp climate, fire-protection is an easy matter. It is in the dry climate of Chotā Nāgpur and Orissa that forest fires are most to be feared, and the greatest care has to be taken; but, in spite of all precautions, large areas in these portions of the Province are frequently burnt. Of the total area of 2,169 square miles over which protection from fire was attempted in 1903–4, 94·98 per cent. was successfully protected at a cost of Rs. 7–8–7 per square mile.

Fuel and fodder reserves.

With the exception of a small area in Jalpaigurī District*, there are no special fuel and fodder Reserves. In the temporarily settled estates of Orissa, however, lands have been set apart in many villages, during the recent settlement operations, for grazing purposes, while in the Government estates of the Kolhān and Palāmau and in some recently settled tracts in Singhbhūm District blocks of waste land have been detached from the 'protected' forest areas and included in the limits of villages, to meet the possible requirements of the villagers in respect of fuel-supply and pasture grounds. In the case of famine or fodder scarcity, the 'reserved' forests in the

affected area are thrown open for the free removal of fruits and roots, and in some cases for grazing.

During the ten years ending 1890, the forest revenue, expenditure, and surplus averaged, respectively, 6.51, 3.86, and 2.65 lakhs; and for the ten years ending 1900, 9.45, 4.86, and 4.59 lakhs. In 1900–1 the gross revenue was 12.34 lakhs, the expenditure 5.78 lakhs, and the net surplus 6.56 lakhs; and in 1903–4 the gross revenue[1] was 10.47 lakhs, the expenditure 6.89 lakhs, and the net surplus 3.58 lakhs. Financial results.

Coal is the chief mining industry. The Bengal mines furnish more than 83 per cent. of the total output of coal in India, and nearly the whole of the coke. With the exception of a narrow unworked field of crushed anthracitic coal of Gondwāna (upper palaeozoic) age in Darjeeling District near the Nepāl frontier, the coal seams lie mainly in the valleys of two rivers, the Barākar and the Dāmodar. The principal fields at present worked are at GĪRĪDĪH, or Karharbāri, in the valley of the Barākar, and at JHERRIĀ and RĀNĪGANJ in the valley of the Dāmodar. These fields are estimated to be capable of yielding 14,000,000,009 tons of coal, excluding 67,000,000 tons already extracted. They all lie within 200 miles of Calcutta and have been made accessible by rail. The Rājmahāl fields give a small output, and Daltonganj, which has recently been connected by rail with Barun, is being developed. Of the unworked fields, Karanpurā with nearly 9,000,000,000 tons of coal is perhaps the most important. The Aurangā, Bokāro, Hutar, and Rāmgarh fields are also of value, but they have not yet been opened out by the construction of railways. These fields contain fair steam coals; some are very good, but they all include a rather high percentage of ash. Many of them yield a good firm coke suitable for furnaces. Mines and minerals. Coal.

The maximum thickness of the seams is 95 feet, and the portions worked vary in thickness from 2½ to 45 feet. As a rule, a quarry is commenced at the outcrop; and as it pays to remove a large overburden from thick seams, a number of huge open excavations are formed. When the cover overlying a seam is too thick to be economically removed, or when the seam is thin, galleries from 8 to 12 feet wide are driven, both on the dip and along the strike of the seam, leaving pillars of coal the size of which varies according to the method of working and the thickness of the seams cover. A system which provides for 12 feet galleries and 12 feet pillars yields at System of working.

[1] The corresponding figures for Bengal as now constituted are: receipts, 8.6 lakhs; expenditure, 5.45 lakhs; and net surplus, 3.15 lakhs.

once three-quarters of the coal; but the remaining quarter, which is left in pillars, can seldom be won. A system allowing 12 feet galleries and 60 feet pillars yields 30 per cent. of coal in the first working, and 70 per cent. is left in pillars; but unless the seam be more than 20 feet thick, a large proportion of the latter can be obtained in the second, or pillar, working. Pillar working is mainly confined to European-managed mines, as there is always danger of a fire breaking out in large areas of pillars. In driving galleries it is usual to start from the top of the seam with a height of 6 feet, and, after this drive has advanced some distance, to deepen it to the full height of the seam by cutting out the remainder of the coal in successive steps. In a few mines the galleries are commenced in the lower portion of the seam, and are heightened by dropping the coal left above. In the East Indian Railway collieries in the Gīrīdīh coal-field the coal is extracted by a combination of the pillar and long wall methods. The lower portion of the seam is cut up into pillars 6 feet in height, and the latter are thinned down till they are only just able to carry the weight of the overlying coal. These thinned pillars are then blown down by dynamite, and the top coal (17 feet thick), which comes away readily from a strong sandstone roof, falls on the floor. When a large area of coal has been extracted, a rib of coal is left against the worked-out portion, or goaf, and a new set of workings is started.

The methods of raising the coal to the surface vary from the primitive means of baskets carried on the heads of cooly women to hauling sets of 5 or 10 tubs on inclines provided with rails, or hoisting in well-fitted shafts up to 640 feet in depth by direct-acting engines. All three methods are in vogue in the chief coal-fields. The coal is cut with picks of English pattern and make by natives of many castes, including the aboriginal Santāls, Mundās, and Oraons, and the semi-Hinduized Musahars, Bauris, Bāgdis, Ghātwāls, Mahlis, Turis, Chamārs, Telis, and Pāsīs. The majority are recruited from the villages surrounding the coal-fields, and from the adjoining parts of Bānkurā, Mānbhūm, Bīrbhūm, and the Santāl Parganas.

The underground work is performed at a fixed price per tub of coal by families, or gangs of men, women, and children, who choose their own hours of labour. The men cut the coal, and the women and children carry it to the tubs. As a rule, they also push the tubs to the shaft or incline, but at one colliery 110 horses and ponies are employed to 'lead' the coal under-

ground. A man can cut about $2\frac{1}{2}$ tubs ($1\frac{1}{4}$ tons) of coal per day of eight hours; but he seldom works more than five days in the week, and strictly observes all high-days and holidays. The number of working days per year varies from 200 to 300. The total value of coal at the pit's mouth in 1901 was 154 lakhs; and as there were 79,652 persons employed, the value of each person's out-turn for the year was Rs. 191. Of this sum, the colliery owner's profit, the landowner's rent or royalty, the cost of stores, tools and equipment, and the superior establishment take about Rs. 98, leaving about Rs. 93 a year as the earnings of each person, or about Rs. 15–8 a month per family.

Growth of the industry.

In 1774 Mr. S. G. Heatly (the reputed discoverer of Bengal coal) and Mr. J. Summer applied to Government for the right of working coal at Rānīganj. In 1777 six mines were worked and 90 tons of coal were obtained. Nothing further was done till about 1815, when a Mr. Jones mined coal from pits and was the first to sell it in the general market. The industry progressed slowly till 1840, when the imports to Calcutta from Rānīganj reached 36,200 tons. From 1840 to 1845 there was a constant increase in output, which by 1845 amounted to 62,400 tons. The East Indian Railway tapped the fields in 1854, and by 1858 the out-turn had increased to 220,000 tons. In 1903 the out-turn exceeded 3,000,000 tons, obtained from 142 mines employing 34,000 persons daily. The Rānīganj field contains two valuable coal series, which are separated by ironstone shales 1,000 feet thick. The Gīrīdīh field was worked from 1857 to 1861, when it was closed for a time; it was reopened and worked systematically in 1871, and in 1903 its yield was 767,000 tons from nine mines employing 10,700 persons. It possesses two valuable seams in the lower coal series, and one of the shafts has a depth of 640 feet. Jherriā was opened in 1894, but its output in 1903 had already risen to 2,746,000 tons, from 115 mines employing 28,000 persons. As at Rānīganj, two coal series exist, the lower one containing eighteen, and the upper one two, valuable seams. Of these seams, twelve are being worked. The East Indian Railway Company at Gīrīdīh, and the Bengal Coal Company in the Daltonganj, Gīrīdīh, and Rānīganj coal-fields each raise more than 600,000 tons yearly; and the output of the Equitable, New Bīrbhūm, and the Barākar Coal Companies exceeds 300,000 tons each. The European-owned collieries raise between them more than 4,000,000 tons, and those owned by natives have an output exceeding $1\frac{1}{2}$ million tons. The capital invested in

joint-stock companies is about 115 lakhs, and there is also a large but unknown investment by private owners. The total output of the Province in 1881 was 930,000 tons. In 1891 it had risen to 1,747,000, in 1901 to 5,704,000, and in 1903 to 6,566,000 tons.

DETAILS OF OUTPUT AND LABOUR FOR EACH COAL-FIELD IN 1903

Particulars.	Total.	Name of coal-field.				
		Gīrīdīh.	Jherriā.	Rānī-ganj.	Dalton-ganj (Palāmau).	Rāj-mahāl.
Number of mines	272	9	115	142	2	4
Output in thousands of tons .	6,566	767	2,745	3,020	34	...
Average number of persons employed daily .	73,928	10,691	28,114	33,854	1,235	34
Under ground .	49,274	7,739	17,789	22,913	823	10
Men . . .	33,372	5,436	10,622	16,611	697	6
Women . . .	14,744	2,213	6,510	5,892	125	4
Children (under twelve) . .	1,158	90	657	410	1	...
Above ground .	24,654	2,952	10,325	10,941	412	24
Men . . .	15,113	2,155	6,109	6,570	262	17
Women . . .	8,231	618	3,557	3,916	133	7
Children (under twelve) . .	1,310	179	659	455	17	...

The railways consume one-third of the total output. The imports of foreign coal into Calcutta, the only important distributing port, which were 70,000 tons in 1880, had dwindled to 2,000 tons in 1901. The exports to foreign ports amounted to 8 tons in 1880, 26,000 tons in 1890, a quarter of a million tons in 1897, and more than half a million in 1901. In Bombay English coal still competes with Indian, for although the latter can be bought in Calcutta for Rs. 7 per ton, the steamer freight and other charges raise its price to Rs. 15 at Bombay, which is only Rs. 2 less than the cost of English coal of better quality. Indian coal reaches Suez on the west and Singapore on the east; at the latter port it competes with the supply from the Japanese mines.

Iron. About 1,700 persons are employed in iron-mining, and practically all the mineral won is dispatched to the works at BARĀKAR, near Asansol, where pig-iron, pipes, and various kinds of castings are turned out. The ore is found in thin alluvial deposits at a number of places, as masses of hematite and magnetite in metamorphic rocks at Kālīmāti and in the iron-

stone shales of the Rānīganj coal-field. The alluvial deposits were at one time worked by natives. The Kālīmāti quarries are shallow, and were opened in 1901, when they produced 7,800 tons of ore, rising in the following year to 10,382 tons. The Rānīganj ore is in the form of carbonate below ground, but it readily weathers, and at the surface consists of hematite and limonite. The beds vary from 2 to 8 inches in thickness and form one-seventeenth of the whole series, which is 1,000 feet thick. About 50,000 tons of ore were won in 1901 from shallow trenches and pits. The total output of the Province rose from 20,000 tons in 1891 to 58,000 tons in 1901 and to 72,000 tons in 1902. The success of the industry depends in a great measure on the coking qualities of the Bengal coal. Attempts at steel-making have proved unremunerative.

Mica. Mica is found over a large area in Gayā, Hazāribāgh, and Monghyr Districts. It occurs in dikes and masses of pegmatite, as more or less defined shoots and patches which, in many cases, are found at the surface during the rains and are worked in the cold and hot seasons. In 1903 there were 251 mines and quarries, employing about 6,500 labourers daily. With the exception of Bendi, all the quarries and mines are worked by primitive native methods. Haulage and pumping are done by women, who are seated on ladders and pass up, from hand to hand to the surface, earthen pots filled with water or baskets with mica. The output in 1901 was 914 tons, valued at 4½ lakhs, or seven times the quantity obtained ten years previously. Of this amount, 628 tons were obtained by an European firm, which owns a large area of land outside the Kodarmā Government forests, where most of the other mines are situated. In 1903 the output had fallen to 692 tons.

Gold, copper, and tin. Recent gold-bearing sands are widely distributed, and yield poor wages to a few Jhorās working with wooden dishes. Numerous veins of vitreous white quartz and grey quartzites occur in Singhbhūm District, and in 1895 several small shafts were sunk. Assays give results varying from 1 to 7 dwts. per ton. A small amount of prospecting work was done in 1901. Copper pyrites are found at Bāraganda, in a band of mica and talcose schists varying from 12 to 40 feet in thickness. The only mine hitherto worked was closed in 1891. The rock contains 3 per cent. of copper, which was increased by concentration to 12 per cent., and the concentrates were carted to Gīrīdih and smelted. In all, 1,100 tons of copper were obtained. At Rājdoha also copper has been worked in small quantities. Alluvial tin is reported from Hazāribāgh, but it has not yet been found in paying quantities.

Saltpetre. The saltpetre of Indian commerce is obtained mainly from the Patna Division and Monghyr. It occurs as a natural efflorescence on the surface of the ground, and its manufacture affords employment to a large number of people belonging to the caste (Nuniā) named after it. The quantity produced in 1900 is estimated at 160,000 cwt., valued at 12 lakhs, or rather less than the out-turn in 1891. In 1903 the out-turn was 382,000 cwt., of a total value of 22·33 lakhs.

Slate. Slate has been quarried in Monghyr for many years, and is now mined. The industry gives employment to nearly 400 persons, and 1,600 tons were produced in 1903. There are two beds of slate on edge, 13 and 9 feet thick respectively. Owing to 'creep' in the hill-side, quarrying has been given up and underground chambers are now cut, from 15 to 25 feet in height, leaving a minimum cover of 30 feet. The slates are thicker than Welsh slates, but are strong and suitable for the flat roofs of Indian bungalows. The castes employed are chiefly Koras, Musahars, Beldārs, Gonrs, Nuniās, Chamārs, and Goālās.

Limestone and other minerals. Limestone is widely distributed in the nodular form known as *kankar*, except in the deltaic tract east of the Bhāgīrathi. In 1900 the out-turn was 100,000 tons, valued at three-quarters of a lakh. Sandstone, suitable for building and road-making, is found in the coal-fields. An output of 40,000 tons, valued at a quarter of a lakh, was reported in 1900. Laterite is found in Bihār and Orissa; 100,000 tons, valued at half a lakh, were raised in 1900. Granite and other igneous rocks are used in Gayā and Hazāribāgh for road-metal. Soapstone occurs in Mānbhūm, and is made into cups and images, but the industry is small.

Arts and manufactures. Hand industries. Cotton weaving. Throughout the Province various handicrafts are carried on, but, as a rule, the articles manufactured suffice only to meet the local demand. DACCA* and SĀNTIPUR were formerly famous for their fine muslins; and early in the nineteenth century the quantity exported to Europe, and especially to France, was very great. From Dacca* alone the exports in 1817 were valued at 152 lakhs. Ordinary cotton goods were also in great demand for the European market, and as early as 1706 efforts were made to induce weavers to settle in the neighbourhood of Calcutta. The introduction of machinery in Europe has not only killed the export trade, but has flooded the country with cheap piece-goods and seriously crippled the local weaving industry. Country-made goods, however, are more durable, and, in the more remote parts, country weavers have main-

tained their business. The weavers of SERAMPORE, who use an improved loom, still hold their own, and so do those of Dacca*, where a carefully bleached white cloth with a border of gold thread is made; while in Patna District the trade in cotton goods and cheap muslins made at Dinapore is still fairly brisk. Cotton-spinning, except as a domestic industry, no longer exists, and the weavers generally work with imported yarn or cotton twist.

Jute is worked up into cloth for gunny-bags, sails, and quilts, mainly in Hooghly and Dacca*, but smaller quantities are manufactured in most parts of Bengal proper. This work is the speciality of the Kapāli caste. The yarn is prepared by the men, and the women weave the cloth. Jute is also twisted into twine from which ropes are afterwards made. Jute.

The silkworm is reared in West Bengal and in the tract where the Presidency and Rājshāhi* Divisions meet. The industry was threatened with extinction, owing to diseases among the worms; but the subject has been investigated by Government agency, and remedies have been applied with a fair measure of success. Silk-reeling is carried on in both European and native filatures, and raw silk is largely exported, the value of the exports amounting in 1903-4 to 47 lakhs. Silk thread is twisted from the reeled silk by women, and is knotted and uneven. The cloth woven is thus of a rough quality, but in spite of this silk-weaving was once a flourishing industry. Of late years it has suffered greatly from the competition of silks made in Japan, China, and Italy, and the value of manufactured silk exported in 1903-4 was estimated at only 6 lakhs compared with 18 lakhs in 1881. The weaving of mulberry silk, which is made chiefly for export, is carried on in Murshidābād and several Districts of West Bengal. That of *tasar* silk, which is in demand among natives, who wear it when performing religious ceremonies, has its head-quarters in West Bengal, Mānbhūm, and Gayā; the business is still fairly prosperous, but, as the worm is not cultivated and the cocoons are collected in the jungle, the supply is very fluctuating. In East Bengal *mūgā* silk from Assam is woven, and in North Bengal a rough cloth is made by Mech women from the silk of the *eri* worm. A mixed cloth, the warp of which is *tasar* silk and the woof cotton, is woven at Dacca*, Bhāgalpur, and Bānkurā. Silk.

Locally made cloths and English cloths of similar texture are embroidered in coloured silks and cottons at Sāntipur by the women of the weaving class, but the arrangement of colours is not very pleasing. Embroidered caps are made at the town of Embroidery.

Bihār. Skilled embroiderers in gold and silver are found at Patna and Murshidābād, but their work is chiefly confined to caps and to the trappings of horses and elephants. In Calcutta and the neighbourhood, the fancy work known as *chikan* is a thriving industry, and there is a considerable demand for it in Europe.

Carpets and blankets.

Cotton carpets are made at Nisbetganj in Rangpur* and at a few places in Bihār. The weaving of woollen goods is carried on only in Bihār and in part of Murshidābād District; but the industry is almost entirely confined to the manufacture of blankets, which are made for the most part by the shepherds themselves. The cloth is woven in narrow strips which are afterwards stitched together. Woollen carpets of good texture are made at Obrā in Gayā District.

Working in metals.

The filigree gold- and silver-work of Cuttack and Dacca* is well-known. The silver-work of Kharakpur in Monghyr is famous, and there are also skilled workers in Calcutta. Blacksmiths and workers in iron are found everywhere, but most of them are employed in the manufacture and repair of agricultural implements and other articles of general use. In Patna, Calcutta, and Kishanganj (Purnea), iron cages, platters, spoons, chains, bolts, &c., are made. A few cutlers work in the suburbs of Calcutta, at Kānchannagar near Burdwān, and at one or two other places. Padlocks and keys are manufactured on a small scale at Nātāgarh and elsewhere. Monghyr was famous for its ironworkers before the days of foreign competition, and it still holds a relatively high position. Its speciality is the making of shot-guns; but during the last few years the business has declined, and in 1901 only 463 guns were manufactured, or less than one-sixth of the out-turn four years previously. The number of fire-arms exported in 1903–4 was 899. This is attributed by the dealers in arms partly to the effect of foreign competition, and partly to the reduced number of gun licences issued in recent years. The manufacture of brass and copper utensils is the one indigenous industry which has not suffered from foreign competition. Figures, supports for *hukkas*, hinges, and the like are sometimes moulded; but the chief articles manufactured are domestic utensils, vessels of brass being used by Hindus and of copper by Muhammadans. They are made either by casting and moulding, or by joining together pieces of beaten-out metal, which at the present day is usually imported in sheets from Europe. The methods employed are of the simplest, and practically no machinery is used.

The manufacture of earthen vessels is carried on everywhere

in Bengal, but the best ware is made in Burdwān District, on the banks of the Bhāgīrathi, where the clay is especially suitable for the manufacture of durable pottery. Black earthen jars are exported in large quantities from the Sātkhira subdivision of Khulnā, and are used for storing oil and grain. In Monghyr porous water vessels are made, and decorated pottery of graceful form is produced at Sasarām. Ornamental pottery is also made at Siwān in Sāran, which is remarkable both for its shape and decoration. The vessels are baked in earthen jars to prevent contact with the flames; they thus become black when baked, and are then glazed with a mixture of clay and fuller's earth. Owing partly to the absence of suitable clay, and partly to the fact that Hindus think it necessary to change their earthen vessels constantly, nothing has yet been done in Bengal towards the production of porcelain or white earthenware. Glazes also are rarely resorted to. Occasionally vessels are smeared, before burning, with a mixture of fine clay, but the art of fusing glazes is not understood. Clay figures of some merit are moulded at Krishnagar, and idols with no pretensions to artistic skill are made everywhere.

Pottery, stone, and glass.

Stone-carving, as an art, is practised only in Gayā, where small statues of gods and figures of animals are made of granite; the carving of stone for the decoration of temples and buildings has almost entirely died out in Bengal. Glass-ware is made, chiefly in Patna, from Son river sand mixed with carbonate of soda. The glass is green and clouded, but at Patna a fair amount of white glass is now made. Bottles for holding perfumery, lamps for illuminations, and glass bangles are the chief articles produced. Bracelets of coarse glass are also made at Bhāgalpur.

Carpentry.

The ordinary carpenter of Bengal is a very rough workman, and is capable of little beyond the making of ploughs and other simple articles in common use among the people. In North and East Bengal, Orissa, and Chotā Nāgpur, the number even of such carpenters is deficient. Carving in wood was formerly practised as an adjunct to architecture, and there are traces of the skill of former workmen in the carved balconies of Patna, Gayā, and Muzaffarpur. This sort of work has almost entirely died out; and the only indigenous wood-carving deserving of mention at the present time is that of the ebony workers of Monghyr, who make pieces of furniture, boxes and other small articles, which are inlaid with patterns in horn and ivory. In some parts, especially in the Patna Division, carpenters have been taught by Europeans to make articles of furniture from

European models, and they often acquire great accuracy and finish. In Calcutta there are now numerous cabinet-makers who learnt their art in the English shops. In Muzaffarpur *hukka* stems are turned, and over 200,000 are exported yearly; *pālkis* and cart-wheels are also manufactured on a large scale.

Miscellaneous. Conch-shell bracelets are made chiefly in Dacca*. They are sawn out by a large metal disk, and are then polished and coloured. Bengal has always been famous for its ivory-carving, the peculiar feature of which is the minuteness of the work, which requires about eighty different tools. The number of persons now employed is, however, very small, and consists only of a few families in Murshidābād, Rangpur*, and Cuttack. Metal inlaying is practised in a few places, the best known being the so-called *bidri* work of Purnea and Murshidābād, which was introduced from the Deccan, and consists of inlaying with silver a sort of pewter, which is made black with sulphate of copper.

Mat-making is largely carried on in South Midnapore, whence comes the cyperus matting sold in Calcutta, and mats of fine reeds are woven in various parts of East Bengal. Bamboo mats and baskets are made everywhere, and fancy baskets of coloured grasses in Bihār. The indigenous Chamār, or leather-dresser and cobbler, is found all over the Province; but his work is very rough and is confined to meeting the simple requirements of ordinary village life—the supply of leathern straps for plough yokes, rough shoes, and the like. In Calcutta a number of shoemakers working in the European style are found, comprising both Chinamen and natives of the country. Leathern harness is made on a small scale in Calcutta and Patna.

Large industries. Jute. The extended use of jute, as a fibre, dates from 1832, when experiments made in Dundee showed that it could be used as a substitute for hemp; and a further impetus was given to the demand when the difficulties which once existed in bleaching and dyeing it were overcome. It is used not only for the making of gunny-bags and coarse cloth, but also in the manufacture of carpets, curtains, and shirtings, and is largely mixed with silk or used for imitating silk fabrics. The rapid spread of jute cultivation during recent years has already been described. The whole of the raw material, except such as was required for the hand-looms of the villages, was formerly exported to Europe, mainly to Dundee; but of late a flourishing local industry has been established, and the banks of the Hooghly are now lined with jute-mills, which are rapidly growing in number and importance. In 1903–4 there were

36 mills with 18,000 looms, employing 122,724 hands, compared with 25 mills with 9,000 looms and 66,000 hands in 1892–3. Nearly half the raw jute produced in Bengal is now consumed in these mills; the value of gunny-bags, rope, and other goods exported in 1901–2 was 859 lakhs, against only 100 lakhs twenty years previously; and the export had further increased by 1903–4 to 936 lakhs. Jute presses are also increasing rapidly in number; in 1903 there were 155, compared with 37 in 1892 and only 4 in 1882.

The Indian cotton-manufacturing industry has its centre in Bombay, but it is steadily growing in importance in Bengal, and there are now ten mills employing about 11,000 hands, compared with an average of six mills employing 6,000 hands in the decade 1881–90. In 1903–4 the out-turn of yarn exceeded 46,000,000 lb. and that of cloth was nearly 700,000 lb. The capital invested has risen from 83 to 177 lakhs. Cotton.

The principal statistics in connexion with the jute and cotton industries are shown in the following table:—

	Number of mills.	Number of looms.	Number of spindles in thousands.	Average daily number of persons employed.
Jute-mills:				
1880–1	19	4,893	66	33,994
1890–1	25	8,066	162	61,563
1900–1	34	15,169	314	110,051
1903–4	36	18,234	373	122,724
Cotton-mills:				
1880–1	6	126	167	4,166
1890–1	8	...	297	8,790
1896–7	9	200	348	10,900
1900–1	10	209	411	8,030
1903–4	10	213	451	10,230

There were in 1903 four paper-mills with a capital of 50 lakhs, employing on the average nearly 900 hands each, and producing nearly 36,000,000 lb. of paper. The capital invested and the production have quadrupled since 1881–90. Other large industries are also growing apace, such as iron and brass foundries, oil-mills, silk, soap, and lac factories, potteries, rope works, &c.; and for miles above Calcutta the banks of the Hooghly present a scene of industrial activity which bids fair in time to rival that of the largest cities in Europe. The principal statistics of these undertakings are shown in the table on the next page. These industries are at present worked chiefly under European supervision and supported by European Paper, &c.

capital. It may be hoped that in time the natives of the country will follow the lead thus given them.

Number in	Industries.								
	Iron and brass foundries.	Oil-mills.	Lac factories.	Potteries.	Rice-mills.	Rope-works.	Silk factories.	Silk-mills.	Soap factories.
1881	4	...	1	1	3	2	20	4*	1
1891	15	32	39	1	2	5	80	2*	...
1901	25	47	16	2	1	7	71	10	1
1903	38	63	48	1	1	7	62	8	1

* These figures include some weaving establishments, the number of which was not reported.

Labour supply.

It is said that the supply of labour for these large industries has not kept pace with the rapidly growing demand, but in spite of this the number returned as employed in 1902 aggregated 253,000, compared with 247,000 ten years earlier. The real increase is much greater, as many industries employing less than twenty-five persons have been left out of account in recent years; and if allowance be made for these, the total number of labourers employed in 1902 may be estimated at 275,000. The returns for 1903 show altogether 261,656 persons employed. These labourers come chiefly from Bihār and the United Provinces and, to a less extent, from Chotā Nāgpur. The wages offered by the mills are nearly double those obtained by unskilled labourers in the tracts whence they chiefly come; and, although the cost of living is also higher, there is no doubt that the rapid expansion of this field of employment is a great boon to the poorer classes. Their main object is to save as much money as they can for the support of their families at home or as a provision for their old age. In the meantime, they live huddled together in crowded lodging-houses as close as possible to the mills and factories where they work; but in other respects they fare better than they would do in their own country, and their dietary is much more liberal and of a far better quality than that to which they are accustomed at home.

Commerce and trade. Exports and imports.

British trade with Bengal commenced about 1633; but prior to the acquisition of the Province it was on a very small scale, and in 1759 only thirty vessels with an aggregate burden of less than 4,000 tons sailed from Calcutta. The chief exports were opium from Bihār and Rangpur*, silk manufactured goods and raw silk from Murshidābād and Rājshāhi*, muslins from DACCA*, indigo and saltpetre from Bihār, and cotton cloths from PATNA. Little except bullion was imported. The 150 years of British rule have witnessed a commercial revolution.

Hand-woven silks and cottons are no longer exported, and machine-made European piece-goods have taken the first place among the imports. On the other hand, owing to the increased facilities for the transport of goods, the food-crops have been largely displaced by fibres and oilseeds, which now figure largely among the exports. The principal imports are yarns and textile fabrics, metals and machinery, oil, and sugar; and the principal exports are raw and manufactured jute, coal, tea, opium, hides, rice, linseed, indigo, and lac. Bengal enjoys a practical monopoly of the export of coal, raw and manufactured jute, lac, saltpetre, and raw silk, and has a large or preponderating share in that of opium, indigo, rice, hides, and tea.

Trade centres.

The maritime trade of the Province is concentrated in CALCUTTA. CHITTAGONG*, the terminus of the Assam-Bengal Railway, exports jute, rice, and tea, and imports salt and oil; but its total trade is still comparatively small. The Orissa ports do an insignificant rice trade. The head-quarters of the jute trade are NĀRĀYANGANJ*, SIRĀJGANJ*, CHĀNDPUR*, and MĀDĀRĪPUR* in East Bengal, and JALPAIGURĪ* in North Bengal; the jute-mills line both banks of the Hooghly river from 10 miles below to 30 miles above Calcutta. Patna is still a market for grain, but the East Indian Railway has robbed it of much of its importance. RĀNĪGANJ, ASANSOL, GĪRĪDĪH, JHERRIĀ, and BARĀKAR are the seats of the coal trade. Calcutta, with its suburbs of HOWRAH, GARDEN REACH, and CHITPUR, is the centre of the commercial and industrial activities of the Province.

The Bengal Chamber of Commerce was founded in 1834, and represents all the large commercial interests of Calcutta. The Bengal National Chamber of Commerce and the Calcutta Trades Association have been formed to protect the interests of native merchants and of the retail trading community. The affairs of the Calcutta and Chittagong ports are administered by Port Trusts.

Internal trade.

Broadly stated, the imports into Calcutta represent the convergence of the products of the country to the chief seaport for shipment overseas, and the exports from Calcutta the distribution inland of foreign imports; the principal articles of export and import are thus the same as have already been enumerated for the Province as a whole.

The registration of internal trade is defective, except for Calcutta, and complete returns exist only for rail-borne traffic. The Province is divided for registration purposes into eight

blocks. The articles most largely exported from the Eastern block are jute, grain and pulses, timber, kerosene oil, and fodder; from the Northern block jute, grain and pulses, tobacco, and tea; from the Dacca* block jute; and from Bihār grain, pulses, oilseeds, stone, and lime. All the blocks obtain their piece-goods from Calcutta. Calcutta receives rice from East and West Bengal; coal from West Bengal and Chotā Nāgpur; jute from Dacca* and East and North Bengal; timber from East Bengal; grain and pulses from West, East, and North Bengal, Dacca*, and Bihār; and oilseeds, opium, and indigo from Bihār. West Bengal imports salt, oilcake, wrought iron and steel, and sugar from Calcutta; coal and timber from Chotā Nāgpur; and grain, stone, lime, and oilseeds from Bihār. East Bengal draws its supplies of salt and railway material from Calcutta; coal from West Bengal and from Chotā Nāgpur; and jute and rice from North Bengal. Bihār imports coal and timber from Chotā Nāgpur.

Trade channels. The railways, rivers, canals, and roads carry country produce to the ports for export, and distribute the imports: the main routes of traffic will be described under Means of Communication. Calcutta, the chief receiving and distributing centre, is connected with all parts of the Province by the railways, which carry the bulk of the internal trade. Next in importance as a channel of communication is the system of the CALCUTTA AND EASTERN CANALS, which carries enormous quantities of rice and jute from the Eastern Districts into Calcutta.

Jute is either exported from Calcutta or manufactured in the mills on the Hooghly. In the former case it is pressed into bales to reduce the freight. One-third of the jute pressed at Nārāyanganj* finds its way to Chittagong* by the Assam-Bengal Railway, and is thence shipped direct. The presses and the mills obtain their jute from the cultivator through native brokers, and the trade in Calcutta is largely in the hands of European brokers. Tea grown in North Bengal is taken to Calcutta by rail, but most of that produced in Assam is carried thither by steamer, and shipped thence to London either by the producers, or by brokers who purchase it at auction. Considerable and increasing quantities of Assam tea are, however, now sent by the Assam-Bengal Railway to Chittagong*, and are shipped thence direct to England. Coal is carried by rail from the mines to Calcutta, whence it is shipped to Bombay and other coast ports. Opium intended for export is also brought to Calcutta, where it is sold at auction by the Board of Revenue. Imported foreign goods

are bought by native merchants, through European brokers, from the consignees, and distributed up-country.

Only 8 per 1,000 of the population are engaged in commerce. A great part of the trade is in the hands of enterprising merchants from Mārwār, chiefly Agarwāls and Oswāls; the indigenous dealers belong in Bengal to the Sunri, Kāyasth, Teli, Subarnabanik, and Brāhman castes, and in Bihār to the Rauniār and Kalwār castes. The Mārwāris are bankers and money-lenders, and dealers in piece-goods and country produce; of the other castes mentioned, the Brāhmans and Kāyasths are engaged as brokers, money-lenders, and bankers, while the others are for the most part petty shopkeepers.

Statistics of the value (i) of the trade of Bengal with other Provinces and States in India, (ii) of the foreign maritime trade, and (iii) of the foreign land trade are given in Tables V–VII on pp. 174–6. Of the trade by sea with other Provinces the largest share, both in imports and exports, is with Burma, which sends rice, timber, and kerosene oil to Bengal, and receives from it coal, tobacco, gunny-bags, and betel-nuts. Next comes the Bombay Presidency, which supplies Bengal with cotton goods and salt, in exchange for coal, rice, gunny-bags and cloth, and tea. The trade by land with Provinces other than those named is carried by rail and river, and much of it is due to the position of Calcutta as a seaport and medium of trade with other countries. The largest share of this trade is with the United Provinces, whence are received opium, oilseeds, grain and pulses, hides and skins, and woollen manufactures, and to which are sent cotton piece-goods, gunny-bags and cloth, metals, and sugar. From Assam, Calcutta receives tea, oilseeds, grain and pulses, stone and lime, and sends in return cotton piece-goods, metals and manufactures of metals, oils (mostly rape and mustard), and salt. Excluding the trade with Calcutta, the imports of Bengal consist mainly of the staple products of the United Provinces, Assam, and the Central Provinces, and the exports consist mainly of grain and pulses, coal, jute, gunny-bags and cloth, spices, and sugar.

External trade.

With other Provinces.

Of the foreign trade by far the largest part is with countries in Europe; and of this the greatest share is with the United Kingdom, from which two-thirds of the imports come. Kerosene oil is imported from Russia, sugar and piece-goods from Germany, wrought iron and steel from Belgium, and sugar from Austria-Hungary and from the Straits. The United Kingdom takes one-third of the total exports, and Germany as much as all the other countries combined.

Foreign sea trade.

Foreign land trade.

The foreign land trade is insignificant except with Nepāl, which absorbs about 92 per cent. of the total. Tibet still presents a practically closed door to the Indian trader, and with Sikkim and Bhutān the trade is trifling. About half of the imports consists of grain and pulses (largely rice); the exports are cotton yarn and piece-goods (European and Indian), metals, provisions, and salt.

Means of communication. Railways.

The total length of the railways in the Province in 1904[1] was 4,578·4 miles, of which the state owned 3,894·8 miles, 971·3 being worked by the state and 2,923·5 by companies, while 616·7 miles belonged to assisted companies, 33·3 miles to an unassisted company, and 33·6 to Native States; no lines are owned by guaranteed companies. Of the total length, 2,932·6 miles belonged to inter-Provincial railways; these are the East Indian, Bengal-Nāgpur, Assam-Bengal, and Bengal and North-Western Railways.

The East Indian Railway, a broad-gauge line owned by the state, the length of which in Bengal is 1,211·6 miles, connects Bengal with the United Provinces, and for many years was also the only connexion between Calcutta and Bombay. It enters Bengal on crossing the Karamnāsā river a little west of Buxar, and has its terminus on the west bank of the Hooghly at Howrah, which is connected with Calcutta by a pontoon bridge. There is also a short link-line which connects the East Indian Railway at Hooghly with the Eastern Bengal State Railway at Naihāti. The earliest alignment of the East Indian Railway ran due north from Howrah to Sāhibganj, where it struck the Ganges, and then swung westwards along the south bank of that river. This is now known as the loop-line, and has been replaced for through traffic by a chord-line from Luckeesarai to Khāna junction. Another chord-line from Mughal Sarai via

[1] In the same year the railways in Bengal as now constituted had a length of 3,484·9 miles, of which 3,040·5 miles were owned by the state, 377·5 miles by assisted companies, 33·3 miles by an unassisted company, and 33·6 miles by Native States. Of the state-owned railways, 2,808·8 miles were worked by companies, and 231·7 by the state. Of the total length, 3,049·6 miles belonged to inter-Provincial railways: namely, the East Indian, Bengal-Nāgpur, Bengal and North-Western, and Eastern Bengal State Railways.

As a result of the partition the following railways now lie entirely outside the Province: the Assam-Bengal (193·9 miles), Bengal-Duārs (152·3), Mymensingh-Jamālpur-Jagannāthganj (51·4), and Noākhāli (34·9) Railways. The Eastern Bengal State Railway now lies partly outside Bengal, 231·6 miles being included in the Province and 739·6 miles in Eastern Bengal and Assam. The length of the Bengal-Nāgpur Railway within Bengal has at the same time been increased by 79·2 miles.

Gayā and Katrasgarh to Sītārāmpur was opened in 1907. The East Indian Railway is the main carrier between Bengal and the United Provinces, and it taps the coal-fields in the neighbourhood of Rānīganj. This railway is worked by a company, which also works the South Bihār and Tārākeswar Railways, two small broad-gauge lines owned by assisted companies.

The Bengal-Nāgpur Railway is owned by the state, but is worked by a company of that name. It is a broad-gauge line with a length of 855·4 miles within Bengal, and its terminus at Howrah; it forms a connecting link between Bengal and Madras, and provides an alternative and shorter route to Bombay. The bifurcation of the lines to Madras and Bombay takes place at Kharakpur, 70 miles west of Calcutta, whence the Madras line runs south through Orissa, while the Bombay line passes west through Chotā Nāgpur to the Central Provinces. This line taps the Jherriā coal-field, and competes with the East Indian Railway as a coal-carrier to Calcutta.

The Assam-Bengal Railway is also a state line worked by a company. It is a metre-gauge line with a length of 193·9 miles within Bengal. The terminus is at Chittagong* and the main line runs north-east to Assam. From Lākshām* a branch runs west to Chāndpur* on the Meghnā, whence communication with Calcutta is established by steamer to Goalundo*; and another branch from Lākshām* to Noākhāli* has also been opened by the company, to which land was given free of charge. This line competes with the river steamers in carrying tea from Assam, and it also brings Nārāyanganj* jute from Chāndpur* to Chittagong* for shipment.

The Bengal and North-Western Railway, a metre-gauge line, connecting North Bengal and Bihār with the United Provinces, belongs to an assisted company, which also works the Tirhut State Railway, and has a length in this Province of 671·7 miles, including 535 miles of the Tirhut State Railway. The metre-gauge line from Sagauli to Raxaul, 18 miles in length, was purchased from a company and incorporated with the Tirhut State Railway. It is linked with the Eastern Bengal State Railway at Katihār, and with the East Indian Railway by ferries across the Ganges.

The railways lying wholly within Bengal are the Eastern Bengal State (including the former Bengal Central), the Noākhāli[1] (Bengal), the Mymensingh-Jamālpur-Jagannāthganj[1], the South Bihār, the Bengal-Duārs, the Calcutta Port Commissioners', the Darjeeling-Himālayan, the Deogarh, the Tāra-

[1] Now transferred entirely from Bengal.

keswar, and the Cooch Behār Railways, and the Howrah-Amtā, Howrah-Sheakhāla, Tārakeswar-Magrā, Bakhtiyārpur-Bihār, Bārāsat-Basīrhāt, and Baripādā light railways.

The Eastern Bengal State Railway is of different gauges: 278·7 miles on the 5 feet 6 inch gauge and 20·3 miles on the 2 feet 6 inch gauge are on the south of the Padmā, and north of that river 637·6 miles are on the metre-gauge and 34·8 miles on the 2 feet 6 inch gauge. The Cooch Behār State Railway, on the 2 feet 6 inch gauge, which is also on the north of the same river, forms part of the Eastern Bengal State Railway system. The terminus is at Sealdah in Calcutta. The main line runs north to the foot of the Himālayas at Silīgurī, crossing the Padmā by a ferry at Sārā*[1]. From Porādaha a branch line runs east to the steamer terminus at Goalundo*; and from Pārvatīpur*, north of the Ganges, branches run east to Dhubri in Assam and west to Katihār, where a junction is effected with the Bengal and North-Western Railway. Branch lines run south from Calcutta to Diamond Harbour, Budge-Budge, and Port Canning; and an isolated branch from Nārāyanganj* runs north to Dacca* and Mymensingh*, and thence to Jagannāthganj* via Singhāni. This railway brings to Calcutta large quantities of jute and tea from North Bengal and of jute from East Bengal.

The Bengal Central Railway, on the 5 feet 6 inch gauge, is a state line formerly worked by a company, which has been worked by the Eastern Bengal State Railway since July 1, 1905, the date of the termination of the contract. It runs north-east from its terminus at Sealdah to Khulnā, with a branch from Bangaon to Rānāghāt, and carries a large jute traffic. The Bengal-Duārs Railway on the metre-gauge traverses Jalpaigurī District*, and is connected with the Eastern Bengal State Railway system at Jalpaigurī* and Lālmanir Hāt*. It serves the sub-Himālayan tea district known as the Duārs. The Calcutta Port Commissioners' Railway on the 5 feet 6 inch gauge connects the Eastern Bengal State Railway north of Calcutta with the docks; a short branch runs on the Howrah bank from Telkal Ghāt to Shalimār. The Deogarh Railway is a metre-gauge line of short length running from Baidyanāth, a station on the East Indian Railway, to Deogarh, a popular place of Hindu pilgrimage. The Darjeeling-Himālayan Railway, which is assisted by Government, runs from Silīgurī, the northern terminus of the Eastern Bengal State Railway, to Darjeeling. The ruling gradient is 1 in 28, and curves with radii varying

[1] It has been decided to bridge the Padmā, or main stream of the Ganges, at Sārā.

from 60 feet (the sharpest) to 1,000 feet are almost continuous on the hill portion of the line.

The Howrah-Amtā Light Railway, like most of the other light lines, receives a 4 per cent. guarantee from the District board, and any profits above that figure are divided equally between the board and the company. Several similar lines have been constructed of late years, the most recent being the Bārāsat-Basīrhāt Railway opened in 1905. The Tārakeswar-Magrā Light Railway is also on the 2 feet 6 inch gauge. The Baripādā Light Railway, a feeder-line with a 2 feet 6 inch gauge, opened in 1905, connects Mayūrbhanj State with the Bengal-Nāgpur Railway system.

The rapid extension of railways has revolutionized agricultural and trade conditions. They have rendered the greater portion of the Province immune from famine, and have greatly reduced the difficulty of battling with it in the few Districts still liable to its attacks. The railways have also done much to level prices and to moderate their fluctuations; and by putting food-grains in circulation, they have led to a vast increase in the cultivation of fibres, oilseeds, and other non-food crops of commercial value.

The principal statistics in connexion with the Provincial railways are given in Table VIII at the end of this article (pp. 177–8).

Roads are classed as Provincial or District roads, the former being maintained from Provincial and the latter from District funds. Provincial aid is occasionally given to the District boards for the construction of new roads, especially for those intended to serve as feeders to railways. Minor roads are classed as municipal, Local fund, military or cantonment, and village roads. Roads.

The total length[1] of Provincial roads, which was 1,663 miles in 1890–1 and 1,659 in 1900–1, increased to 2,406 in 1903–4. During the same periods the length of District roads increased from 32,110 to 37,728 and 50,631 miles respectively; the last figure includes a great many village roads already in existence but not previously taken into account. The maintenance of Provincial roads cost 6·27 lakhs in 1890–1, 12·29 lakhs in 1900–1, and 9·99 lakhs in 1903–4. The corresponding figures for District roads were 22·09, 22·81, and 21·16 lakhs.

[1] The total length of Provincial roads in 1904–5 in the Province as now constituted was 2,362 miles, and of District roads 36,367 miles. The cost of maintenance of Provincial roads was 8·21 lakhs, and of District roads 14·45 lakhs.

The increase in the cost of maintenance of Provincial roads in 1900–1 was due to the expenditure of 7·34 lakhs on the Darjeeling roads after the cyclone. The grand trunk road traverses the Burdwān, Chotā Nāgpur, and Patna Divisions, from Calcutta to the western frontier, with a total length in the Province of 390 miles. The Orissa trunk road runs from Calcutta via Cuttack to the Madras border, the length being 320 miles. The Rānīganj-Midnapore road has a length of 101 miles, and the Barākar-Rānchi road of 120 miles. The Ganges-Darjeeling road runs from near Katihār to Silīgurī for 124 miles. These roads are metalled. An important unmetalled road runs from Chittagong* to Daudkāndi*, a distance of 124 miles.

In the alluvial soil of Bengal proper it is very difficult to make good roads. The roads are raised by embankments above the level of the swamps with earth dug from the roadsides, but, stone not being available locally, very few of them can be metalled. Those which are metalled are soled with brick and dressed with broken brick. Stone is employed only in Calcutta and Chittagong*, to which ports ships bring stone in ballast. Elsewhere in the Province laterite and *kankar* make excellent road material, and stone also is sometimes available. The construction of railways has diminished the importance of the trunk roads, some of which have consequently been made over to District boards for maintenance. On the other hand, the increased facilities afforded by the railways for the export and import of goods have created a demand for numerous feeder-roads.

Vehicles. The ordinary country cart of Bengal consists of a framework of bamboo, supported on two wooden wheels and a wooden axle. The body is in the shape of a triangle tapering down towards the front, and it is drawn by a pair of bullocks which are yoked to a cross-bar about 4 feet long. The felloes of the wheels are made of six segments of *sissū* wood, and there are six spokes arranged in parallel pairs. The *ekkā* is a light two-wheeled trap, drawn by a single pony. The body consists of a framework covered with coarse cloth with *newār* tape woven across. It can be used over the most uneven ground. The *manjholī* and the *champani* are both drawn by a pair of bullocks. The former is similar to an *ekkā*, but the yoke consists of a beam of wood at right angles to another long beam projecting from the body of the cart. The *champani* is a two-wheeled, and sometimes a four-wheeled, light carriage similar in construction to an omnibus. It has, however, no benches within to sit on, and the travellers squat or lie down

as they please. It has a pole with a cross-bar, which rests on the necks of the bullocks that drag it.

On the hill roads of Darjeeling a very heavy strongly built cart is used. In Bihār a distinction is made between the large heavy country cart or *chakrā* and the *sāgar*, which is rougher, lighter, and cheaper, but otherwise very similar. In Chotā Nāgpur and the Orissa Tributary States, where the *sāgar* is also in use among the villagers, the wheels do not exceed 2½ feet in diameter, and are made by joining three pieces of solid wood hewn out of a mango or *mahuā* tree; being low and narrow, it is well suited for rough work and bad roads. The Oriyā cart is peculiar. It consists of two poles of *sāl* wood or bamboo tied together at one end and about 3 feet apart at the other, and joined by cross-bars at intervals. The framework rests on a pair of wheels about 4 feet high and about 4 feet apart, and there is as much behind as in front of the axle-bar. The bullocks are yoked one on each side of the narrow end, and will drag half a ton 15 or 20 miles a day on a metalled road. For carrying grain a long coffin-shaped basket of split bamboo holding some 10 maunds is fitted on to the body of the cart, while in towns the body itself is often made in the shape of a box for transporting road materials. In Cuttack city, with the advent of the railway, the light little Madras hackeries drawn by a single bullock have become common.

Tramways.

Several steam tramways have been opened in rural areas; but these would be more properly described as light railways, and as such have been mentioned in the section dealing with railways. The only tramway in urban areas is that serving the city of Calcutta, which is owned by a private company. This tramway was formerly dependent on horse traction; but the unsatisfactory condition of the tramway lines and of the traction employed led in 1901 to the framing of a new agreement between the Corporation and the company, the main features of which were the introduction of electric traction by means of overhead wires, the postponement of the Corporation's right to purchase the tramways to 1931, and the restriction of the fixed track rents payable by the company for the existing tramways to Rs. 35,000 a year. An arrangement has recently been made with the Calcutta Tramways Company for the introduction of a similar electric tramway service in Howrah.

Navigable canals.

The Calcutta and Eastern Canals are a system of improved natural channels connected by artificial canals, which carry the produce of East Bengal and of the Brahmaputra

Valley to Calcutta. Their total length is 1,127 miles, and the capital outlay amounts to 77·1 lakhs. The net revenue in 1903–4 was 1·3 lakhs, and in the same year the value of the goods carried was estimated at 512 lakhs.

The HIJILĪ TIDAL and ORISSA COAST CANALS run from the mouth of the Rūpnārāyan river to Chāndbāli in Balasore District, with a total length of 159 miles. The capital cost of the two canals has been 26·15 and 44·79 lakhs respectively. Their gross revenue in 1903–4 amounted to Rs. 42,000 and Rs. 34,000 respectively; the former showed a small profit and the latter a loss on the year's working. The Bengal-Nāgpur Railway has diverted much of the traffic from these canals, as it has also from the MIDNAPORE and ORISSA CANALS, which, like the SON CANALS, were constructed primarily for irrigation. The Midnapore canal is navigable for 72 miles, and the tolls collected in 1903–4 amounted to Rs. 47,153. The Orissa Canals are navigable for 205 miles, and carried in 1903–4 cargo valued at 74 lakhs, the tolls aggregating Rs. 70,336. The SON CANALS are navigable for 218 miles. The East Indian Railway has killed the traffic on them, and in 1903–4 they carried cargo valued at only 16 lakhs, the tolls amounting to Rs. 22,708.

Finally, the NADIĀ RIVERS are a group of spill channels of the Ganges, which are kept open by artificial means in the dry season, and are navigable for 472 miles. In 1903–4 the cargo carried by them was valued at 205 lakhs; the gross revenue amounted to Rs. 88,402, but there was a loss of Rs. 15,986 on the year's working.

Waterways.

In the east of the Province the rivers and estuaries carry the bulk of the country trade, and the roads are little used, especially in the rainy season. The chief waterways are the GANGES and BRAHMAPUTRA, and their joint estuary the MEGHNĀ, which are navigable throughout their course in Bengal by river steamers and large country boats. Both rivers throw off in their lower reaches innumerable distributaries, which intersect the country in every direction and enable boats to find their way to every village and almost to the door of every cottage. The eastern deltaic offshoots of the Ganges feed the Calcutta and Eastern Canals. The GANDAK in North Bihār still carries a heavy traffic, and the MAHĀNADĪ and BRĀHMANĪ tap the hinterland of Orissa.

Steamers.

Weekly steamers ply from Calcutta to Chittagong* and to Chāndbāli on the Orissa coast; small steamers also run from Chittagong* to Cox's Bāzār*. Goalundo*, at the confluence of

the Padmā and Brahmaputra, is the terminus of a great steamer traffic up the Ganges to Ghāzīpur, and up the Brahmaputra to Dibrugarh. A daily service to Nārāyanganj* connects Dacca* with Calcutta, while mail steamers to Chāndpur* link up the Assam-Bengal with the Eastern Bengal State Railway. Steamers ply daily from Calcutta through the Sundarbans to Assam, via Barisāl*, Chāndpur*, and Nārāyanganj*. On the Hooghly river steamers run daily up to Kālna, and down to Budge-Budge, Ulubāria, and Ghātāl. On the Padmā steamers ply between Dāmukdia Ghāt and Rāmpur Boāliā* and Godāgāri*, with a continuation to English Bāzār (Mālda)*, and between English Bāzār* and Sultānganj. From Khulnā steamers run to Barisāl*, Noākhalī*, Nārāyanganj*, Mādārīpur*, and other places, and there is a daily service on the Brahmaputra from Goalundo* to Phulcharī*. Backergunge District* is also well served by steamers.

Several lines of steamers connect Calcutta with London, the principal being those of the Peninsular and Oriental and the British India Steam Navigation Companies, and the City, Clan, Harrison, and Anchor Lines. The Hansa Line has a steamer service to Hamburg and Bremen, the Austrian-Lloyd Steam Navigation Company to Trieste, and the Brocklebank Line to Antwerp. The South African mails are carried by the Natal Line, while the steamers of the Indian and African Line also ply between Calcutta and Durban. The chief steamers running to Australia are those of the British India Steam Navigation Company and the Currie and Commonwealth Lines. A steamer of the Messageries Maritimes Company plies regularly between Calcutta, Pondicherry, and Colombo, where it connects with the main line between Marseilles and the Far East. Vessels belonging to the fleet of the British India Steam Navigation Company carry passengers and cargo to Penang and Singapore, and also to Chittagong*, Akyab, Rangoon, Moulmein, and various coast ports on both sides of the peninsula. The Calcutta-Hongkong Line of Messrs. Apcar & Co. maintains a regular service to Penang, Singapore, and Hongkong; while the Asiatic Steam Navigation Company carries the mails to Port Blair, and has a line of steamers running weekly to Burma and fortnightly to the coast ports and Bombay.

Indigenous navigation.

Country boats are of all shapes and sizes, and the largest carry some 150 tons. They are generally very broad in the beam and of light draught. All carry a great square sail, the larger boats adding a topsail. Against wind they are rowed, or poled if the water be shallow, and against tide or current

they are towed from the bank. The cargo boats are always decked over. Passengers use the budgerow, a broad-beamed craft with ample cabin space and room for a galley in the stern. The *bhauliā* is a smaller and more lightly built passenger boat. On the smaller streams and across the swamps light dug-outs carry all the traffic. They are poled in shallow water and paddled on the deeper channels.

Ferries. The larger rivers are rarely bridged, and passengers, carts, and cattle cross in ferry-boats. These ferries are leased annually at auction for a considerable sum. Some are Provincial, but most have been made over to District boards and municipalities. The total receipts from ferries in 1903–4 were 6·5 lakhs, of which 5 lakhs was credited to District boards and 1·5 lakhs to municipalities. Steam ferries ply across the Ganges, connecting railway systems; the most important are at Sāra, Mokameh, and Palezā Ghāt. A steam ferry crosses the Hooghly from Diamond Harbour to Geonkhāli.

Post offices. The Province is divided for postal purposes into three circles[1], of which the Bengal circle (which includes Kātmāndu in Nepāl) is under a Postmaster-General, and the East Bengal and Bihār circles under Deputy-Postmasters-General. Each circle is subdivided into divisions managed by Superintendents. The table on the next page shows the remarkable advance which has taken place in postal business for the three Bengal circles taken together.

The business is, however, still very small in comparison with the population, and the number of postal articles of all kinds delivered in 1903–4 works out to only two per head of the population. The figures relate to both the Imperial and District post. The latter system was a substitute for the official posts which under ancient custom Bengal landowners had to maintain. A tax, known as the Dāk cess, was levied, and expended in maintaining postal communications required for administrative purposes, the upkeep of which was not warranted on commercial principles. The District Magistrate decided what communications were to be opened and maintained, but their management was in the hands of the Postal department. The expenditure from this cess, which was fixed for each District according to its requirements, averaged 3·58 lakhs annually for the five years ending 1903–4. In 1903–4 the offices numbered 292, the length worked was 11,832 miles, and the expenditure amounted to Rs. 3,53,384. In 1906 the

[1] In 1905 the Province, as reconstituted, became a single circle, the Bihār circle being abolished.

tax was abolished, and the District post was amalgamated with the Imperial system.

	1880-1.	1890-1.	1900-1.	1903-4.
Number of post offices and letter boxes	4,671	8,089	9,927	11,204
Number of miles of postal communication	21,498	25,672	27,686	28,347
Total number of postal articles delivered (in thousands):—				
Letters	28,550	37,636	57,538	56,495
Postcards	3,433	24,922	53,678	64,307
Packets	382	2,524	6,747	4,803
Newspapers	2,229	5,394	9,388	10,248
Parcels	213	407	804	1,182
	Rs. in thousands.	Rs. in thousands.	Rs. in thousands.	Rs. in thousands.
Value of stamps sold to the public	11,91	12,53	31,35	36,16
Value of money orders issued	1,20,24	5,08,02	7,99,03	8,81,87
Total amount of savings bank deposits	...	1,54,46	2,93,62	3,39,80

Famine. Tracts liable thereto.

In an agricultural country like Bengal the failure of the crops must always cause considerable distress, the degree of which varies with the nature and extent of the failure, the material condition of the people, and their character, and lastly the accessibility or otherwise of the tract affected.

The great cause of deficient harvests is insufficient or badly distributed rainfall. Sometimes much damage is done by floods, and sometimes, though more rarely, by blight or locusts; but in such cases the area affected is generally limited.

The crop which is most sensitive to a short or badly distributed rainfall is the winter rice, which requires copious showers in May and a punctual commencement of the monsoon, but is especially dependent on the continuance of the rainfall throughout September and the early days of October; it is this crop which is most liable to fail in adverse seasons. It follows that, if the rainfall is uncertain, the tracts most liable to famine are those in which the winter rice is most largely grown. In the favoured Districts of Eastern Bengal the winter rice is the staple crop; but there a serious failure of the annual rains is unknown, and the subsoil water-level is so high that, in years when the rainfall is only moderately deficient, the ground retains sufficient moisture to prevent anything approaching a total loss of the crops. The whole of the Dacca* and Chitta-

gong* Divisions are therefore excluded from the list of tracts liable to famine. Here the only danger of disaster arises from the cyclonic storm-waves which, at intervals, burst over the country and carry in their train widespread ruin and desolation. In other parts of Bengal proper, where also the winter rice is as a rule the principal crop, the immunity from famine is less complete; but the rainfall is usually ample, and the areas liable to famine are less extensive than in the other sub-provinces. From time to time the submontane tracts have been swept by disastrous floods; and, when the embankments on the left bank of the Bhāgīrathi give way, floods occasionally break across Murshidābād and Nadiā Districts. The Dāmodar also sometimes inundates the country on its right bank.

In Bihār the conditions north and south of the Ganges differ considerably. The latter has a more scanty rainfall; but it enjoys an extensive system of irrigation, partly from the Son Canals constructed by the Government, and partly from reservoirs constructed by the ryots themselves on the slopes of the undulations which characterize that part of the country. A great variety of crops are grown, and it rarely happens that famine obtains a grip over any considerable area. North of the Ganges the rainfall is more copious than on the south bank, but it is more capricious than in Bengal proper. In Sāran and the south of Muzaffarpur there is a good deal of irrigation from wells or streams, and the crops are divided almost equally among the three great harvests of the year, so that a total crop failure is practically impossible. Elsewhere, and especially in the northern part of Champāran, Muzaffarpur, and Darbhangā Districts, which borders on the Nepāl *tarai*, winter rice is the main crop. In normal years the fertile soil yields bountiful crops without irrigation, which has not been adequately provided and which is necessary only in seasons of drought; but the population is dense, wages are low and rents high, and when the rains fail the distress is great. This is the zone described by Sir Richard Temple as the 'blackest of black spots on the famine map.' There has scarcely ever been a year of distress or scarcity in any part of Bengal when North Bihār did not bear the brunt of it. Orissa suffered terribly from famine in 1866 and 1867; but, since the construction of the canals now in existence, there has been no widespread crop failure, and it is only in Purī District that famine on a large scale is at all likely to occur. Chotā Nāgpur is a sparsely populated region, inhabited by wild tribes; and its liability to famine is due mainly to its inacces-

sibility, which makes it difficult to import food-grains, and to the suspicious and restless nature of the ignorant aborigines, who shun relief works as they would the plague.

The danger of widespread famine is gradually being reduced, owing to the improvement in the material condition of the people, the growing demand for labour in the coal-mines, jute-mills, and other non-agricultural undertakings, the great improvement that has been made in communications, and especially the rapid growth of railways, which now tap nearly every District in the Province, and the construction of protective canals in the tracts where the danger of famine due to insufficient rainfall is greatest. In the whole Province it is estimated that an area of 74,500 square miles is liable to famine; and of this area 28,500 square miles are in the sub-province of Bihār, 27,000 in Chotā Nāgpur, 14,500 in Bengal proper, and 4,500 in Orissa. The population of this area is 29,000,000; and if all these tracts were simultaneously affected by severe famine, it might be necessary to provide relief for 2,000,000 persons.

History of famines.

The first great famine of which we have any trustworthy record is that which devastated the Province in 1769–70, when Bengal, though subject to British control, was still under native administration. Eastern Bengal alone escaped, and, except for the importation of a small quantity of rice from this favoured tract, it does not appear that any public measures for relief were taken. One-third of the population of Bengal is believed to have perished in this terrible catastrophe. The next really serious scarcity in Bengal was the memorable Orissa famine of 1865–7. The full extent of the crop failure consequent on the scanty rainfall of 1865 and the exhaustion of the local food supplies was not realized by the authorities in time; and when at last, in June, 1866, an effort was made to provide the starving people with food, the south-west monsoon prevented the ships, lying laden with grain in the port of Calcutta, from reaching the stricken people[1]. It is said that a quarter of the population died of starvation and of the diseases which resulted. This disaster, appalling as it was, had one good result—it led to a firm determination to prevent all similar occurrences in future, and from that time dates the earnest watchfulness which has never since been relaxed. At the next serious crop failure in 1874 scarcity

[1] The monsoon of 1866 was as heavy as that of the previous year had been light, and in low-lying tracts the rice was destroyed by floods. On this occasion ample relief was given.

prevailed chiefly in North Bihār and also, in a lesser degree, in South Bihār and North Bengal. On this occasion relief measures were undertaken in ample time, and all serious loss of life was prevented. The defect, if any, in the administration of this famine was that money was expended too lavishly, and the object in view might perhaps have been effected at a lower cost than the 6 crores actually spent.

In 1891 the early close of the monsoon and the absence of the cold-season rains caused much damage to the winter rice and *rabi* crops, and relief operations were necessary in parts of Muzaffarpur, Darbhangā, Monghyr, Bhāgalpur, Purnea, and Dinājpur*. The largest number on relief works on any one day was 83,000, and on gratuitous relief 4,700; the total cost of the operations was rather less than 5 lakhs.

The famine of 1896–7 was far more serious. The causes of the crop failure were a very unfavourable distribution of the rainfall early in 1896 and its entire absence after the early part of September. There had been a very poor harvest of winter rice in 1895, and in 1896 it was again this crop that suffered most. The brunt of the famine fell upon the Districts of Champāran, Muzaffarpur, Darbhangā, and Sāran, and especially upon the tracts near the Nepāl frontier, where the proportion of rice cultivation is highest. In the Chotā Nāgpur plateau, Palāmau, Hazāribāgh, Mānbhūm, and two tracts in the Santāl Parganas were seriously affected. Relief works were opened in November, 1896, and by the close of the year 45,000 persons were employed on them. In March, 1897, the distress deepened rapidly, and the numbers on relief rose steadily until May, when 402,000 persons were employed on famine works, and 426,000 were in receipt of gratuitous relief. As soon as the monsoon had fairly set in, the numbers quickly diminished, and during September and October relief operations were brought to a close. The total expenditure was nearly 110 lakhs, in addition to advances to cultivators aggregating nearly 3 lakhs, donations of nearly 20 lakhs from the Charitable Relief Fund, the outcome of voluntary subscriptions in India, England, and other countries, and private relief by *zamīndārs* and others. The measures adopted were most successful in saving life; and the vital statistics, which are confirmed by the results of the last Census, show that, except in the wilder parts of Chotā Nāgpur, the mortality was actually below the normal during the famine year[1]. The birth-rate

[1] This subject is fully discussed in the *Bengal Census Report* for 1901, paragraphs 181, 184, 186, 199, 202, and 397.

was very little affected; it fell slightly in 1898, the year after the famine, but rose so much higher than usual in the following year, that the mean birth-rate of the two years taken together was considerably above the average for the decade.

In 1899 the monsoon was very capricious in parts of Chotā Nāgpur and Orissa. There was excessive rain in July, but exceptionally little in August and September. The crops were very poor throughout the area affected, but actual famine supervened only in about half of Rānchī and a small part of Palāmau District.

Government. The Lieutenant-Governor. Secretariat.

As already stated, the immediate control of the Province of Bengal was vested in the Governor-General of India till 1854, when a Lieutenant-Governor was appointed. He has a staff of five secretaries—three for the ordinary civil administration and two for Public Works. The former are the Chief Secretary, who is in charge of the Revenue, Political, and Appointment departments, the General Secretary in the Judicial and General departments, and the Secretary in the Financial and Municipal departments. One of the Public Works Secretaries is concerned with irrigation, marine, and railways, and the other with roads and buildings. The Judicial department was formerly under the Chief Secretary, and revenue matters were dealt with by the General Secretary; but recently (1905) a redistribution of work has been introduced by which the Revenue department has been transferred to the Chief Secretary, and the Judicial department to the General Secretary. The branches of work now under the Chief Secretary include land revenue, surveys and settlements, agriculture, forests, mines, police, registration, and political matters; those under the Judicial and General Secretary include prisons, education, and emigration; and those under the Financial and Municipal Secretary include separate revenue, opium, local self-government, medical, and sanitation.

Board of Revenue.

The control of all matters connected with the collection of the revenue and the administration of the land is vested in the Board of Revenue, which was constituted by Regulation III of *1822*. There are two members, one of whom deals with land revenue, surveys and settlements, land registration, the management of wards' estates, the collection of cesses, &c., and the other with miscellaneous revenue, including excise, opium, income-tax, salt, customs, and the like. Each member is vested with the full powers of the Board in respect of his own department, and can act for his colleague if the latter is absent.

Commissioners. For administrative purposes Bengal is divided into nine Divisions, each of which is superintended by a Commissioner. Of these, five—the Burdwān, Presidency, Rājshāhi*, Dacca*, and Chittagong* Divisions—lie within the limits of Bengal proper; two—Patna[1] and Bhāgalpur—make up the sub-province of Bihār, while Orissa and Chotā Nāgpur each forms a separate Commissionership. The average area[2] of a Commissioner's Division is rather more than 17,000 square miles, and the average population is a little more than 8 millions. The Chotā Nāgpur Division with 27,000 square miles is the largest, while the most populous is the Patna Division with 15½ millions, or about the population of the Bombay Presidency, excluding Sind. The Commissioner exercises a general control over the conduct of affairs within his Division. He is responsible for seeing that the local officers duly perform the duties required of them, and that the orders issued by Government are carried into effect. He is addressed by the local officers when they are in need of instructions, and he refers to Government or to the Board of Revenue all questions which he is not competent to dispose of himself. He also assists Government and the Board with his advice when called upon to do so.

Districts. These Divisions are again subdivided into Districts, each under a District officer, known as the Magistrate and Collector in regulation, and the Deputy-Commissioner in non-regulation[3] tracts. Including Angul and the Chittagong Hill Tracts*, but excluding Calcutta, there are in all forty-seven Districts. The two largest are Hazāribāgh and Rānchī, each extending over more than 7,000 square miles, or about half as large again as Wales, while the smallest is Howrah with only 510 square miles. The greatest number of inhabitants is found in Mymensingh*, whose population of 4,000,000 does not fall far short of that of the whole of Upper Burma. The average area[4] of a District exceeds 3,300 square miles, and the average population is more than 1½ millions.

Subdivisions. These Districts again are usually partitioned into two or more subdivisions, the head-quarters subdivision being usually

[1] In 1908 Patna was divided into two Divisions, north and south of the Ganges.

[2] Bengal as reconstituted consists of six Divisions, the average area being a little over 19,000 square miles.

[3] The non-regulation Districts are those in which some at least of the general laws and Regulations are not in force. They form the 'Scheduled Districts' referred to in Act XIV of 1874 (see *Imperial Gazetteer*, Vol. IV, p. 131).

[4] There are now thirty-three Districts, the average area being 3,500 square miles.

administered by the District Magistrate and each of the others by a Joint, Assistant, or Deputy-Magistrate subordinate to him. The total number of these subdivisions is 134. Their area on the average is[1] 1,177 square miles, and their population more than 559,000. The last and smallest unit of administration is the police circle or *thāna*. This is primarily the unit of police administration, and is usually in charge of a sub-inspector; but it has also come to be the acknowledged unit of territorial partition and is used in all administrative matters. The number of *thānas* in Bengal is 569, or about 12 per District; their average area is 277 square miles, and their population about 130,000 persons. The fiscal divisions of the Muhammadans, called *parganas*, formed the basis of the British revenue system; but they are wanting in compactness and, except for the purpose of land revenue payments, they are no longer of any practical importance.

The District officer.

The mainstay of the British administration is the District officer. He is the executive chief and administrator of the tract of country committed to him, and all other magisterial, police, and revenue officers therein employed are subordinate to him. As District Magistrate he is the head of the department of criminal justice, which is charged with the trial of all but the more important charges; the latter are committed to the Court of Sessions, if inquiry goes to show that a prima facie case has been established. He is assisted in police matters by the District Superintendent of police, who is allowed a free hand in all purely administrative details. He is *ex-officio* chairman of the District board, and, as such, is in charge of all local public works, village sanitation, and education; he is assisted in these matters by the District Engineer and the Deputy-Inspector of schools. The municipalities of the District are sometimes presided over by official, and sometimes by non-official, chairmen, but in either case the District officer is expected to exercise a general supervision and control. He is also *ex-officio* Registrar of assurances. As Collector he is responsible for the realization of all kinds of revenue and taxes, for the management of Government estates, the assessment of the income-tax, the settlement of, and supervision over, excise and opium shops, &c., &c. The officers in charge of subdivisions exercise within their own jurisdictions, in subordination to the District officer, the powers of chief local magistrate; certain other powers are also delegated to them,

[1] There are now 100 subdivisions, the average area being 1,170 square miles and the average population 504,000.

but they do not usually collect land revenue, and in police matters they possess only judicial and not executive control.

The Magistrate-Collector is assisted in the criminal and revenue administration of the District by a subordinate staff —a Joint-Magistrate, Deputy-Magistrate-Collectors, Assistant Magistrate-Collectors, and Sub-Deputy Magistrate-Collectors. Joint-Magistrates and Assistant Magistrates are junior officers of the Indian Civil Service; the other officials are recruited in India, and are members of the Provincial or the Subordinate civil service. All these officials are stationed either at District or at subdivisional head-quarters.

The village watch are paid from taxation assessed and collected in the villages by the *panchāyats*, who represent all that remains in Bengal of village autonomy. These *panchāyats* assist in the registration of vital statistics; and recently, in order to develop the system of village government, it has been decided that the presidents of the *panchāyats* are to be *ex-officio* visitors of primary schools aided from public funds or under public management, and also of pounds, public ferries, and public *sarais* in their Unions. In some Districts the presidents have also been granted certain magisterial powers. In Chotā Nāgpur village communities are still to be found, and some account of the system is given in the article on the MUNDĀ tribe.

Native States.

The following are the Native States under the control of, or in political relations with, the Government of Bengal[1]:—

Sikkim.

Sikkim lies to the east of Nepāl and is bounded on the north and north-east by Tibet, on the east by Bhutān, and on the south by Darjeeling District. Early in the nineteenth century Sikkim was menaced by the Gurkhas; but its independence was secured by the treaty made with Nepāl in 1816, at which time it included the greater part of the present District of Darjeeling. In 1835 part of the hilly tract west of the Tīsta was ceded to the British Government, for the purpose of a sanitarium; and in 1850 the rest of it and the *tarai*, i.e. the Silīgurī *thāna*, were annexed on account of the Rājā's misbehaviour. For many years the State was left to manage its own affairs, but for some time prior to 1888 the Tibetans were found to be intriguing with the Mahārājā, who became more and more unfriendly. Affairs reached a climax in 1888, when an expedition was sent against the Tibetans, who had advanced into Sikkim and built a fort at Lingtu. The Sikkim State was

[1] In 1906 Sikkim and Bhutān were placed in direct relations with the Government of India.

occupied by British troops, and the Tibetans were driven off with ease. Since 1889 a Political officer has been stationed at Gangtok, to advise and assist the Mahārājā and his council. No precise rules have ever been laid down for the civil and criminal administration. All except very trivial cases are tried at Gangtok, either by the Mahārājā himself or by the Political officer, or by one or other of them in association with some member of the council. Appeals are heard by the Mahārājā, sitting with one or more members of the council, or by a committee of the council. Capital sentences passed by other authorities require the confirmation of the Mahārājā. The annual budget estimates of income and expenditure are, in the first instance, approved by the Mahārājā and his council, and are then submitted for the sanction of the Government by the Political officer.

Bhutān lies east of Sikkim and Darjeeling and north of Jalpaigurī* and of the Goālpāra, Kāmrūp, and Darrang Districts of Assam. It is internally independent, and there is no British Resident. Repeated outrages on British subjects by the hillmen, and the brutal treatment of a British envoy, led in 1864 to the hostilities already described, which resulted in the confiscation of the Duārs*, or submontane tracts, with the passes leading into the hills, in return for which an annual subsidy of Rs. 50,000 is paid at Buxa*. Since then relations with Bhutān have, on the whole, been of a friendly character; and under the ascendancy of the Tongsa Penlop, who, in the name of the Deb Rājā, controls all public affairs, the country enjoys the advantage of a settled government. The Political officer in Sikkim now conducts relations with Bhutān also. Bhutān.

The Feudatory State of Cooch Behār lies in the plains at the foot of the Bhutān hills, between the District of Rangpur* and the Jalpaigurī Duārs*. It is the only remnant of the great Koch kingdom founded by Biswa Singh in the early part of the sixteenth century, which, under his son Nar Nārāyan, extended from the Mahānandā as far east as Central Assam. On Nar Nārāyan's death the kingdom was divided into two parts, and only the western portion remained in the possession of the ancestors of the present Mahārājā, who accepted the Muhammadans as their overlords. Their power gradually declined, and from time to time they were shorn of outlying parts of their dominions. Early in the eighteenth century the Bhotiās began to interfere, and by 1772 they had taken possession of the Rājā and of his capital. British aid was then sought, and, in consideration of the cession in perpetuity of Cooch Behār.

half the revenues as then ascertained, the Bhotiās were driven out. The Mahārājā administers the State with the assistance of a council, of which he is the president, and which includes the Superintendent of the State, a British officer, who is vice-president, and two State officials—the Dīwān, who is revenue member, and the Civil and Sessions Judge, who is judicial member. The executive control is vested in the Faujdāri Ahlkār, who corresponds to the Magistrate of a British District, and is subordinate to the Superintendent of the State. The Civil and Sessions Judge occupies much the same position as the corresponding officer in Bengal regulation Districts. Sentences of death require the confirmation of the Mahārājā. The budget is passed by the Mahārājā, and does not need the sanction of any other authority; but a general control over the affairs of the State is exercised by the Government of Bengal in the Political department.

Hill Tippera. Hill Tippera* lies to the south of Tippera District* and, like Cooch Behār, represents the last fragment of a once powerful kingdom, which formerly extended far into the plains of East Bengal and South Assam, and which long bade defiance to the Muhammadan Nawābs[1]. The Tippera kings were gradually deprived of their rule in the plains, and at the time of the acquisition of Bengal by the East India Company they exercised sovereign powers only in the hill tract now ruled by them. The Rājā, however, derives the greater part of his income from certain large estates in British territory which he holds as *zamīndār*. No formal treaty regulates the relations between the British Government and the Rājā of Hill Tippera*, but the succession of a new Rājā has always been subject to recognition and investiture by the British authorities. No control was exercised in respect of the internal administration until the year 1871, when an English officer was appointed to reside in the State as Political Agent, to protect British interests and advise the Rājā. This officer was subsequently withdrawn, and his duties now devolve on the Magistrate and Collector of Tippera District*, who is *ex-officio* Political Agent for Hill Tippera*. He is required to maintain a close watch over the affairs of the State, and it is to him that Government looks for information regarding all important occurrences there. All correspondence passes through him, and an annual report on the administration of

[1] The *Rājmāla*, or Chronicle of the Kings of Tippera, has been analysed by the Rev. J. Long, in a paper in the *Journal of the Asiatic Society of Bengal*, vol. xix, p. 533.

the State is submitted to him, for transmission to Government through the Commissioner of the Chittagong Division*. The chief is himself the highest court of appeal in all civil and criminal matters, and sentences of death passed or confirmed by him are final.

The Orissa Tributary States [1] are 17 in number: namely, Athgarh, Tālcher, Mayūrbhanj, Nīlgiri, Keonjhar, Pāl Laharā, Dhenkānāl, Athmallik, Hindol, Narsinghpur, Barāmbā, Tigiriā, Khandparā, Nayāgarh, Ranpur, Daspallā, and Baud. These were acquired at the conquest of Orissa from the Marāthās in 1803; but as they had never been brought under complete control by the native governments, they were exempted from the operation of the general Regulations. Treaties were made with the several States on various dates between 1803 and 1829. It has been held that these States do not form part of British India, and the status, position, and power of the chiefs are defined in their *sanads*. The chiefs administer civil and criminal justice under the supervision of the Commissioner of the Orissa Division, who is *ex-officio* Superintendent of the Tributary States. All capital cases, and, except in special cases when a chief's powers have been increased, all heinous offences which require more than two years' imprisonment, are committed by the Assistants to the Superintendent of Tributary Mahāls for trial. One of these is a special native Assistant, who tries sessions cases from certain States and such other cases as the Superintendent may make over to him; the others are the Magistrates of Cuttack, Purī, and Balasore, and the Deputy-Commissioner of Angul, who are *ex-officio* Assistant Superintendents, but, with the exception of the two last mentioned, they do not often deal with criminal cases. The Assistant Superintendents have the powers of District Magistrates and Sessions Judges, while the Superintendent has the powers of a Sessions Judge, and also, in respect of the proceedings of his subordinates, those of a High Court.

Orissa Tributary States.

In Chotā Nāgpur there are seven Tributary and two Political States [2]. The former, including Chāng Bhakār*, Korea*, Jash-

Chotā Nāgpur States.

[1] Owing to the territorial change effected in October, 1905, the number of these States has been increased from 17 to 24, as two States, Gāngpur and Bonai, have been transferred from the Chotā Nāgpur States, and five more, namely, Bāmra, Rairākhol Sonpur, Patnā, and Kālāhandi, have been transferred from the Central Provinces.

[2] The Chotā Nāgpur States now include only the two Political States of Kharsāwān and Saraikelā. Of the other States, Gāngpur and Bonai have been transferred to the Orissa Tributary States, and the rest, namely, Chāng Bhakār, Koreā, Jashpur, Surgujā, and Udaipur, have been transferred to the Central Provinces.

pur*, Surgujā*, Udaipur*, Gāngpur, and Bonai, were tributaries of the Bhonsla dynasty of Nāgpur, and were ceded under the provisional agreement concluded with Mādhujī Bhonsla in 1818. The tribute was then fixed at a lower rate than that levied under the Marāthā government, and the settlements with the chiefs were made for a limited period. Fresh settlements for a nominal term of five years were made in 1827, but were not renewed until 1875, when they were made for a period of twenty years. The latter were renewed in 1889, when the tribute was fixed for a further period of twenty years, and the States having in the meantime been declared by the Secretary of State to be outside British India, the relations between them and the British Government were defined in their new *sanads*. The chiefs of these States are under the control of the Commissioner of Chotā Nāgpur. They are permitted to levy rents and certain other customary dues from their subjects. They are empowered to pass sentences of imprisonment up to five years and of fine to the extent of Rs. 200; but sentences of imprisonment for more than two years, or of fine exceeding Rs. 50, require the confirmation of the Commissioner. Heinous offences calling for heavier punishment are dealt with by the Deputy-Commissioners of Rānchī, Palāmau, and Singhbhūm, who exercise the powers of District Magistrates and Assistant Sessions Judges; the Commissioner and Judicial Commissioner in respect of such cases occupy the position of a Sessions Court, while the functions of a High Court are performed by the Government of Bengal.

The two Political States of Saraikelā and Kharsāwān lie in Singhbhūm, and control over them is exercised by the Commissioner through the Deputy-Commissioner of that District. They were claimed as feudatories by the Rājā of Porāhāt, whose territory was confiscated in 1857 for rebellion, but was in 1895 restored as a revenue-free *zamīndāri* to his son. It is believed that engagements were taken from the chiefs of these States, but they are not now forthcoming. They have now, however, received *sanads* similar to those described above, and their general position is much the same as that of the Rājās of the Tributary States, except that they do not pay tribute.

Legislation and justice.

The laws in force in Bengal consist of (1) Acts of Parliament relating to India; (2) certain still unrepealed Regulations of what was known as the Bengal Code, framed by the Executive Government before the creation of the legislative bodies; (3) Acts of the Governor-General's Legislative Council, now

constituted under the Indian Councils Acts, 1861 and 1892; (4) Regulations for certain backward tracts issued by the Government of India under the Statute 33 Vict., c. 3; and lastly, (5) Acts of the Bengal Legislative Council. The Bengal Council came into existence on January 18, 1862, under a proclamation by the Governor-General-in-Council which extended the provisions of the Indian Councils Act, 1861, to the Bengal division of the Presidency of Fort William[1]. The Legislative Council at first consisted of twelve members and a president, the Lieutenant-Governor of Bengal; but this number has been raised to twenty under the Indian Councils Act, 1892. By regulations made under this Act, it has been provided that of the twenty members not more than ten shall be officials; of the non-official members, seven are nominated by the Lieutenant-Governor on the recommendation of certain local bodies and associations, and three at his own discretion.

The Bengal Legislative Council.

The financial position of the Government of Bengal is explained in Council every year, and is there open to criticism, so far as it concerns the branches of revenue and expenditure that are under the control of the Government of Bengal. There is also a right of interpellation, which is limited to matters under the control of the Lieutenant-Governor, who may disallow questions which appear to him to be inconsistent with the public interest. No resolution can be proposed or division taken in connexion with the financial statement.

Among the legislative measures enacted since 1880 which specially affect this Province, the following deserve mention:—

Act of the Indian Council

The Bengal Tenancy Act (VIII of 1885).

Acts of the Bengal Council

The Bengal Drainage Act (VI of 1880).
The Cess Act (IX of 1880).
The Bengal Municipal Act (III of 1884).
The Bengal Local Self-Government Act (III of 1885).
The Calcutta Port Act (III of 1890).
The Public Demands Recovery Act (I of 1895).
The Calcutta Municipal Act (III of 1899).

Civil justice.

In respect of civil justice the High Court at Calcutta (more properly designated the High Court of Judicature at Fort William in Bengal) is a court of record and equity, and is constituted under the Indian High Courts Act, 1861, as the supreme court in Bengal, exercising both original (including

[1] As regards legislation and the functions of the Provincial Legislative Councils, *see Imperial Gazetteer*, Vol. IV, chap. v.

ecclesiastical, admiralty, and bankruptcy) and appellate jurisdiction. Below the High Court are the District and Additional Judges, the Small Cause Courts, the Subordinate Judges, who are sometimes also appointed to be Assistant Judges, and the Munsifs. Of these, the District, Additional, and Assistant Judges also exercise the powers of a criminal court; the others are purely civil judges, with the exception of a few Munsifs who are vested with magisterial powers.

The ordinary jurisdiction of a Munsif extends to all original suits cognizable by the civil courts in which the value of the subject-matter in dispute does not exceed Rs. 1,000, or, if specially extended, Rs. 2,000. The jurisdiction of a Subordinate Judge or District Judge extends to all original suits cognizable by the civil courts. It does not, however, include the powers of a Small Cause Court unless these have been specially conferred.

Appeals from Munsifs lie to the District Judge, or to the Subordinate Judge, if the High Court, with the sanction of the Local Government, so direct. Appeals from Subordinate Judges lie to the District Judge, except when the value of the subject-matter exceeds Rs. 5,000, in which case the appeal lies to the High Court. Appeals from the decrees and orders of District and Additional Judges lie to the High Court. An appeal may, subject to certain restrictions, be preferred from the High Court to the Privy Council in England, if the amount in dispute exceeds Rs. 10,000.

The powers of Courts of Small Causes are regulated by Act IX of 1887. Subject to certain exceptions, their jurisdiction extends to all suits of a civil nature of which the value does not exceed Rs. 500, a limit which may be increased to Rs. 1,000 by a special order of the Local Government. The Local Government is empowered, under Act XII of 1887, to invest Subordinate Judges and Munsifs with Small Cause Court jurisdiction for the trial of cases not exceeding Rs. 500 in value in the case of Subordinate Judges, and Rs. 100 in the case of Munsifs. In civil suits above a certain limit Calcutta is under the original jurisdiction of the High Court. The Small Cause Court of Calcutta has a purely local jurisdiction and is regulated by a special Act.

The principal statistics[1] relating to civil justice are embodied in the statement on the next page.

[1] The corresponding number of suits instituted in 1903 in Bengal as now constituted was:—Suits for money and movable property, 161,173; title and other suits, 46,914; rent suits, 211,783; total, 419,870.

Class of suits.	Average for ten years ending 1890.	Average for ten years ending 1900.	1901.	1903.
Suits for money and movable property	255,630	297,137	284,017	298,686
Title and other suits	35,653	63,234	76,271	76,350
Rent suits	180,650	247,787	286,201	339,099
Total	471,933	608,158	646,489	714,135

Criminal justice.

Criminal justice is administered by magistrates (of whom there are three classes), the Courts of Sessions, and the High Court. Subject to the maximum punishment prescribed by law for each offence, a magistrate of the first class has power to sentence offenders to imprisonment, either rigorous or simple, up to two years, including solitary confinement, or to fine to the extent of Rs. 1,000, or to imprisonment and fine combined, or to whipping as a separate or an additional punishment. A magistrate of the second class can award imprisonment up to six months, fine up to Rs. 200, or both, and also whipping, if specially empowered in this behalf. A magistrate of the third class may imprison up to one month or fine up to Rs. 50, or he may combine these punishments. Benches consisting of two or more honorary magistrates, sitting together, have been appointed at almost all the District headquarters, and at most of the subdivisional stations in Bengal. An honorary magistrate, if specially empowered, can also sit singly for the trial of cases. Honorary magistrates are ordinarily appointed for a term of three years, which is renewable. Their powers vary according to circumstances; but, generally speaking, benches of honorary magistrates are invested with second or third-class powers, and the majority of honorary magistrates sitting singly with the powers of a magistrate of the second class. The Magistrate of the District exercises first-class powers, and hears appeals against convictions by magistrates of the second and third classes. Such appeals may also be heard by any magistrate of the first class duly empowered by the Local Government. Magistrates of the first class and benches of magistrates of the second and third classes may try certain offences summarily when specially empowered to do so, but in such cases the sentence may not exceed three months' imprisonment.

In Calcutta criminal justice is administered by three stipendiary Presidency Magistrates, a municipal magistrate appointed

to try offences under the Municipal Act, and several benches of honorary magistrates.

The Courts of Sessions are presided over by a single Judge, who tries, with the aid of a jury or assessors, all cases committed to him by the magistracy, and decides, sitting alone, all appeals from convictions by magistrates of the first class, other than those in cases tried summarily when the magistrate passes a sentence of imprisonment not exceeding three months, or fine not exceeding Rs. 200, or whipping only, or in petty cases when the sentence does not exceed one month's imprisonment or Rs. 50 fine. The Sessions Judge is also empowered to call for and examine the record of any proceeding before a subordinate court, for the purpose of satisfying himself as to the correctness and legality of any order passed. The powers of a Sessions Judge are limited only by the maximum punishment fixed for each offence in the Penal Code, but sentences of death are subject to confirmation by the High Court.

The High Court, on its original side, tries, by a single Judge with a jury, all cases committed to it by the Presidency Magistrates, and also certain cases in which the accused are European British subjects, which may be committed for trial by magistrates in the interior. On its appellate side the High Court, by a bench of two or more Judges, disposes of appeals in respect of convictions on trials before a Court of Sessions. It revises, upon reference from Sessions Judges or magistrates, the decisions of inferior courts when in error upon points of law, deals with appeals which the Local Government may prefer against acquittals, and confirms, modifies, or annuls all sentences of death passed by Sessions Courts.

The table[1] on the next page contains some of the more important statistics relating to criminal justice. During the last few years there has been a considerable increase in the number of offences against property, which is said to be due to the high price of food-grains.

[1] The following table gives the corresponding figures for 1903 for Bengal as now constituted:—

	Number of persons tried.	Percentage of convictions.
(*a*) Offences against person and property . .	68,916	40·3
(*b*) Other offences against the Indian Penal Code	22,781	62·7
(*c*) Offences against special and local laws . .	99,858	87·4
Total	191,555	67·5

	Average for ten years ending 1890.	Average for ten years ending 1900.	1901.	1903.	Percentage of convictions, 1903.
Number of persons tried:					
(a) For offences against person and property	89,832	95,346	99,834	98,852	38.8
(b) For other offences against the Indian Penal Code . .	36,569	37,249	33,313	33,742	61.2
(c) For offences against special and local laws . . .	98,302	130,487	111,425	121,052	84.3
Total	224,703	263,082	244,572	253,646	63.5

Registration of documents.

The registration of assurances is effected under the same law (Act III of 1877) as in other parts of British India. The cost is met by fees levied from persons presenting documents for registration or desiring copies of registered documents, according to a scale prescribed by Government. The Registration department is presided over by an Inspector-General. The District Magistrates, who are *ex-officio* Registrars, have full power of inspection and control over all registration offices in their Districts, and are responsible for the proper conduct of the work. At the head-quarters of each District there is a salaried officer, known as the special sub-registrar, who deals with the documents presented for registration there, and assists the Registrar in the supervision of the proceedings of all other registration officers in the District. The number of the latter, who are called rural sub-registrars, varies according to local requirements. Formerly the special sub-registrars used to receive, in addition to their salaries, a commission on the documents registered by them, while the rural sub-registrars were remunerated only by fees on a sliding scale and were entitled to no pension or gratuity on retirement. A new scheme for the reorganization of the department has, however, recently been introduced. The system of payment of commission has been abolished, and both the special and rural sub-registrars have been graded on fixed salaries, the services of the latter, like the former, being made pensionable. In Calcutta the Registrar is a separate officer on a fixed salary. The chief statistics connected with registration operations are exhibited in the table on the next page. The number of documents registered in 1901 was more than double the average of the decade 1881–90, and the receipts exceeded those of the same decade by more than 50 per cent.

	1881-90.	1891-1900.	1901.	1903*.
Number of offices	297	395	442	454
Number of documents registered	709,642	1,226,997	1,440,347	1,448,010
Annual receipts . Rs.	10,58,365	14,42,331	16,51,822	16,41,989
,, expenditure Rs.	5,62,043	8,18,406	8,83,927	8,90,418

* The corresponding figures for the present area of Bengal are: number of offices 272, and of documents registered 806,920; annual receipts Rs. 10,14,127, and expenditure Rs. 5,20,618. These figures include the portion of Sambalpur District not transferred to Bengal, separate statistics for which are not available.

Finance. The present Provincial system of finance dates from 1871, when the financial management of the great spending departments of registration, jails, police, education, medical (except medical establishments), printing, and certain branches of public works expenditure was entrusted to the Government of Bengal, a fixed assignment of 117 lakhs being made to meet the charges. In 1877 the process of decentralization was carried farther by the transfer to the Local Government of other items of expenditure, together with the assignment, on progressive terms, of certain heads of revenue which it was thought would benefit by careful local management, including salt, stamps, excise, Provincial rates, and assessed taxes, an equilibrium being established between the income from these sources and the expenditure, as estimated for the first year of the contract, by means of a fixed money contribution. The receipts and expenditure on state railways and canals were also made over to the Local Government. It was anticipated that the interest charges on account of their cost of construction would exceed the net earnings, and the Local Government was empowered to meet the deficiency by taxation to be raised by a special public works cess imposed under Act II (B.C.) of 1877. This settlement was made for a period of five years.

On its expiry, a new settlement was arranged, on very similar terms, but a proportion of the land revenue was given instead of the fixed money contribution required to produce an equilibrium between revenue and expenditure, and the public works cess, being no longer regarded as hypothecated for the payment of interest on the capital cost of Provincial public works, became merged in the general revenues of the Province. In the three quinquennial settlements which followed, no material advance in the system of decentralization was made; but the shares of the Provincial and Supreme Governments in the three principal heads of land revenue, stamps, and excise were redistributed, the Local Government obtaining in 1887 and 1892

one-quarter of the receipts from land revenue and excise, and three-quarters of the stamp revenue. Meanwhile, the management of all but a few minor lines of railway was gradually resumed by the Government of India, the last railway to be transferred from local control being the Eastern Bengal State Railway. This was in 1897; and in order to compensate for the loss of this progressive source of revenue, the Provincial share of the receipts from excise was raised from one-quarter to one-half. At the same time, the receipts and expenditure of the Salt department were reserved as wholly Imperial. The settlement of 1897 was, as usual, fixed originally for five years, but was extended by two years and did not expire until March 31, 1904.

The latest settlement marks a great advance in decentralization. The previous five-year settlements began with undue economy and ended with extravagance. The difficulty has been to devise a scheme which should be permanent, but which should not involve unfairness, or risk of unfairness after a lapse of years, to the Supreme Government or to the Local Government. For this problem a simple solution has been found. The present settlement is neither for five years nor is it permanent, but it will last for an indefinite period, and it is subject to revision if over a long period of years it is found to be unfair to one side or the other. Another principle laid down was that, when heads of revenue or expenditure were divided, the Local Government should have the same share both of the revenue and of the expenditure under the same head. This has, however, been departed from in the case of land revenue, the expenditure on which has been made wholly Provincial, although the Local Government gets only one-quarter of the receipts. The Local Government gets the whole of the receipts under registration, one-half of those under stamps, seven-sixteenths of those under excise, and one-quarter of those under assessed taxes and forests, and bears the same proportion of expenditure in each case. The settlement of 1904.

The result of this arrangement has been to reduce the annual net addition to the Provincial revenue by about one-fourth. Previous settlements involved a revision at the end of five years, which meant that the Local Government then gave up part of its income to the Supreme Government. As such revisions are no longer to be made, it is obvious that the rate of expenditure must be fixed on a somewhat lower level. On the other hand, the Local Government will not benefit from the absence of revision until the expiry of five years, when the first revision

would otherwise take place; and to make up for this, the Supreme Government made a grant to the Local Government of a lump sum of 50 lakhs, on the understanding that its expenditure was to be spread over several years. The net result of the changes under the present settlement is that the charges made over to Provincial management exceed the Provincialized receipts by 49 lakhs, and this deficit is made good annually by a fixed assignment under the Land Revenue head.

The general financial results, so far as the Province of Bengal is concerned, will be seen from Tables IX and X at the end of this article (pp. 179, 180). The most noteworthy features are the expansion of the revenue under the headings excise, Provincial rates, registration, stamps, and forests, and of the expenditure under superannuation, law and justice, police, contributions to Local funds, medical, and general administration. The growth of the excise revenue has been due to various causes, of which the more important are enhancement of the rates of duty levied, increase of population, greater prosperity of the people, which has enabled them to spend more on luxuries, improvement in the efficiency with which the department is administered, and not least the general rise of prices, which has affected excisable equally with other articles, and has swelled the receipts of the vendors and the public revenue. The avowed policy of the Government has been to restrict the consumption of drugs and spirits by raising the duty charged on them. The steady expansion under Provincial rates, which are assessed on the annual value of land, is due mainly to periodic revaluations, and not to any change in the rate at which the cess is levied, which has for many years stood at the maximum allowed by law. The registration receipts, though they still show an upward tendency, increased most rapidly during the early years of the system of Provincial contracts, when registration offices were freely opened wherever there appeared to be a reasonable demand for them, with the result that many more documents were brought under registration than had been the custom in previous years. In 1887 it was decided that process-serving fees in revenue courts and copying fees should in future be levied in court-fee stamps and not in cash, and this led to a marked improvement in the stamp revenue. Apart from this, the development of this source of revenue is the outcome of growing prosperity and industrial and commercial development, and that under forests is due to more efficient management coupled with an increasing demand for forest produce.

There has been a rise on account of salaries in various

departments. Exchange compensation allowance has been granted to European officials, and in several departments there has been a reorganization of establishments and a general increase of pay. During the currency of the settlement of 1884–5, an additional yearly expenditure of 4¾ lakhs was incurred under 'judicial courts,' the result of an increase in the number of Subordinate Judges and Munsifs and of judicial establishments generally. About the same time the reorganization of the police department, in accordance with the recommendations of the Police Commission of 1891, led to an additional yearly expenditure of about 6 lakhs. In recent years the expenditure under medical has been swollen by charges incurred in connexion with the suppression of plague; but large sums have also been spent on works of general utility, such as the building of the Bhawānīpur Hospital, the remodelling of the General Hospital, and the extension of the Medical College in Calcutta. The increased contributions to Local funds were made partly to aid them in the arrangements they had to carry out for the prevention of plague or in the repairs of damages caused by the disastrous earthquake of 1897, and partly to assist them to provide feeder-roads for railways and improve communications generally. The ordinary income of the District boards is not capable of much expansion, and those bodies have to rely on subventions from Government to meet their growing needs, while the amount of aid which the latter is able to render varies with its own financial position[1].

The transfer of a number of Districts to Eastern Bengal and Assam has reduced the Provincial revenues to about 463 lakhs (estimate for 1906–7), to which is added a fixed contribution of 11 lakhs from Imperial funds.

The current land revenue demand[2] for the year 1903–4 was more than 4 crores, or one-fifth of the principal heads of receipts in the Province. Four-fifths of the land revenue was permanently settled at the end of the eighteenth century; and since that date the *zamīndārs* and their tenants have shared between them the entire benefit of the enormous increase in the value of the produce of land which has taken place, including Land revenue.

[1] The Provincial finances were seriously crippled in 1897 by an expenditure of 27½ lakhs on famine relief, besides nearly 5 lakhs granted as compensation for the dearness of food to the lower-paid servants of Government, and a heavy expenditure on account of plague; it was thus necessary to withhold the much-needed aid to local bodies until equilibrium was restored by a special contribution of 17 lakhs from the Government of India.

[2] The demand in Bengal as now constituted was 284 lakhs, or nearly 3 crores.

that of waste land since brought under cultivation. The result is that Bengal pays a lower revenue than any other Province, with the single exception of the Central Provinces, and the incidence of the land revenue per acre is only R. 0–13–2 as compared with Rs. 1–7–8 for India as a whole.

According to valuation returns furnished by *zamīndārs* and tenure-holders under the Cess Act, the total rental of the Province amounted in 1903–4 to 17·84 crores. Of this sum, the land revenue absorbs less than one quarter, and the remainder is shared by the *zamīndārs*, tenure-holders, revenue-free proprietors, and rent-free holders. These figures illustrate the huge financial sacrifice involved in the Permanent Settlement, for, after deducting the gross rental of revenue-free estates, rent-free holdings, and temporarily settled estates, the 'assets' of the permanently settled revenue-paying estates may be estimated at 1472 lakhs; and if the revenue had been periodically resettled, their assessment would probably now be not less than half the gross rental, i.e. 736 lakhs, or considerably more than double the actual figures of 323 lakhs.

Muhammadan assessments.

The earliest assessment known to have been made in the Province was Todar Mal's great settlement of 1582, according to which the revenue of Bengal, Bihār, and Orissa amounted to 185 lakhs of rupees. The principle of Todar Mal's settlement was to ascertain the produce of each field, and to take as the revenue a share of it, estimated by different authorities at one-third or one-fourth. Bengal, however, being an outlying Province of the empire, was not measured, and Bihār was only partially surveyed; the assessment was therefore made on the basis of the reports of village accountants, and cannot be said to have borne any ascertained relation to the produce of the soil. Such as it was, however, it remained the basis of all subsequent Mughal settlements, and practically of the Decennial Settlement also.

Todar Mal's revenue was enhanced by the successive Mughal governors of Bengal, the increases being due partly to territorial acquisitions, partly to *abwābs* or proportionate additions to the original assessment of Todar Mal, and partly to the taxation of newly cultivated or improved lands. By 1765, when the British acquired the Dīwāni or financial administration of the Province, the nominal revenue had risen to 312 lakhs, though it is doubtful whether so large a sum was ever realized.

The Permanent Settlement.

In 1790–1 the Decennial Settlement, which in 1793 was declared permanent, was carried out by British officers; and the total assessment, including that of two Districts in Assam,

amounted to 268 lakhs of *sicca* rupees, or 286 lakhs of Company's rupees. It was made on the basis of preceding temporary settlements; and detailed inquiries regarding out-turn and rates of rent were expressly forbidden, as the Directors were anxious to avoid any investigations of an inquisitorial character. It is impossible, therefore, to determine the proportion which the assessment bore either to the produce of the land, or to the rental received by the *zamīndārs*. It was believed at the time, however, that it amounted to 90 per cent. of the gross rental; and Sir John Shore estimated that, of the gross produce of the soil, the British Government received 45 per cent., the *zamīndārs* and their under-renters 15 per cent., and the cultivators 40 per cent.

The increase in the revenue of the permanently settled estates, from 286 lakhs in 1790–1 to 323 lakhs in 1903–4, was due to the resumption and assessment, during the first half of the nineteenth century, of a large number of estates which had been claimed as free of revenue. During the same period, however, the gross rental of these estates has risen from 318 to 1472 lakhs (assuming that the assessment of 1790 was equivalent to 90 per cent. of the gross rental); in other words, the Government share of the rental has fallen during this period from 90 to 24 per cent.

Temporarily settled estates.

The operations of the Permanent Settlement did not include the unsettled part of CHITTAGONG*, the KOLHĀN estate in Singhbhūm and other tracts in Chotā Nāgpur, the DĀMAN-I-KOH in the Santāl Parganas, or the SUNDARBANS. These tracts are temporarily settled, as are also many alluvial islands and estates which have escheated, or been purchased from time to time by the Government at revenue sales. Tracts acquired since 1793 are also temporarily settled: namely, the sub-province of Orissa, acquired from the Marāthās in 1803; the Khurdā estate in Purī, confiscated in 1804; the District of Darjeeling, acquired partly from Sikkim in 1835 and 1850, and partly from Bhutān in 1864; the estates of Bānki and Angul, confiscated in 1839 and 1847; and the Western Duārs*, taken from Bhutān in 1864. Cāchār and the Assam Valley proper were acquired on various dates between 1826 and 1842; but in 1874 they and the permanently settled Districts of Sylhet and Goālpāra were separated from Bengal and formed into a separate administration. A brief review of the revenue history of the separate tracts is given below.

ORISSA was settled in 1845 at a revenue of 13·84 lakhs for a period of thirty years, which, however, was extended in con-

sequence of the famine of 1866. In 1897 it was resettled for 21·05 lakhs, or 54 per cent. of the 'assets,' which amounted to 38·68 lakhs. The incidence of the new revenue is Rs. 1–1–10 per acre, and the period of settlement thirty years. The KHURDĀ estate was settled *ryotwāri* in 1875 for 2·68 lakhs. In 1897 it was resettled for fifteen years at a revenue of 3·46 lakhs, the increase being effected by an enhancement of 3 annas in the rupee. The incidence of rent per acre is Rs. 1–10–6.

The resettlement of the PALĀMAU estate in 1896 for a term of fifteen years resulted in the increase of the rental from Rs. 58,000 to Rs. 74,000, mainly on the ground of extension of cultivation; the average rate of rent paid by settled ryots is Rs. 1–2–3 per acre. By the settlement of the DARJEELING *tarai* in 1898 the revenue was raised from Rs. 93,000 to Rs. 1,12,000, the assessment being made at rates varying from 4 annas to Rs. 2 per acre, and the term being fixed for twenty years. The Bānki estate in Cuttack District was resettled in 1891, the revenue being increased from Rs. 21,000 to Rs. 29,000, mainly on account of extensions of cultivation. The revenue of ANGUL, resettled in 1892, was increased from Rs. 46,000 to one lakh for the same reason, but the enhancement was introduced on the progressive system. The WESTERN DŪARS* were resettled in 1895, when the revenue was increased from 2·34 to 3·75 lakhs.

The temporarily settled estates in Chittagong* were settled in 1848 and in 1881, the aggregate revenue amounting to 3·85 lakhs. This was raised by the settlement of 1897 to 6 lakhs, the enhancement being due chiefly to extension of cultivation. The settlement was made partly with middlemen, who were allowed to retain, on the average, 41 per cent. of the 'assets,' and partly with the ryots direct. The average rate of rent paid by settled ryots is Rs. 5 per acre. The term of this settlement is thirty years.

The settlement of the Jaypur Government estate in Bogra District* in 1898 increased the revenue from Rs. 39,000 to Rs. 51,000, while the resettlement of a number of petty Government estates in the Sundarbans and elsewhere raised the demand from 4·20 to 5·41 lakhs.

Growth of revenue.

It has already been stated that the revenue[1] of the permanently settled estates has risen from 286 to 323 lakhs. The revenue of the temporarily settled estates, which was *nil* in

[1] In the present area of Bengal the current demand from permanently settled estates in 1903–4 was 228¾ lakhs, from temporarily settled estates 29½ lakhs, and from estates held direct by Government 25⅝ lakhs.

1790, was 36 lakhs in 1903-4, and that of estates held direct by Government 46 lakhs, the total revenue of the three classes of estates taken together being 405 lakhs, compared with 347 lakhs in 1850, 379 lakhs in 1882, and 383 lakhs in 1892. The formation of the Province of Assam in 1874 deprived Bengal of a total land revenue of 30 lakhs, of which 4½ lakhs was due from the permanently settled estates of Sylhet and Goālpāra and the remainder from other areas.

Number of estates.

The number of permanently settled estates is increasing very rapidly owing to partitions; this is especially the case in the Patna Division, where the number has almost trebled in thirty-eight years. Revenue-paying estates[1] in 1903-4 numbered 190,000, of which 176,000 are permanently and 10,500 temporarily settled, and the remainder are held direct by Government. Only 474 estates are large properties of over 20,000 acres, while 90 per cent. of the total number comprise less than 500 acres apiece.

Revenue-free estates and rent-free lands.

In addition, 56,000 revenue-free estates and 119,000 rent-free holdings are assessed to road and public works cesses. At the time of the Permanent Settlement large areas were claimed revenue free, and the authority to scrutinize such revenue-free grants, and, if invalid, to resume them, was specially reserved. They were divided into two classes, according as they had been granted by the Mughal emperor direct, or by the officials of the empire. The former were recognized as valid if the holder could prove that his grant was hereditary and that he was in possession. The latter were accepted as valid if dated prior to 1765; all grants of a subsequent date were resumed, but those given between 1765 and 1790 were assessed at privileged rates. All rent-free grants made by *zamīndārs* after 1790 were invalidated, and *zamīndārs* were authorized to nullify their own grants. Resumption proceedings were systematically undertaken by special Commissioners between the years 1830 and 1850, when some thousands of estates were added to the revenue-roll. The revenue-free estates are those which escaped resumption during these proceedings, and their number has been swelled by redemption of the land revenue, which is permitted in the case of very petty estates. The rent-free holdings are small areas which were assigned in former times by *zamīndārs* for religious or charitable purposes.

[1] In the same year the number of revenue-paying estates in the present area of Bengal was 122,000, of which 110,000 were permanently and 10,000 temporarily settled, the remainder being held direct by Government.

Realization of revenue.

The land revenue is realized with remarkable punctuality. In 1903–4 no less than 97·8 per cent. of the current demand was realized within the year, the percentages in the three classes of permanently settled, temporarily settled, and directly managed estates being 98·9, 96·7, and 89·3 respectively. The revenue of estates belonging to the first two classes is realized under the Sale Law, which renders an estate liable to summary auction sale if the revenue is not paid in full by a fixed date. The revenue is payable by instalments which have been fixed for each District with reference to the date of the harvests, so that the instalments may be realized from the sale proceeds of the surplus produce. Arrears of rent in estates under direct management are recovered under the 'certificate procedure': in case of default the Collector certifies the amount due, and his certificate has the force and effect of a decree of court, and is executed accordingly.

Zamīndārs.

In early Mughal times the only *zamīndārs* recognized were the territorial chiefs, who were left in possession on grounds of policy, on condition that they agreed to pay into the imperial treasury a certain proportion of the revenue collected from their villages; with this exception, the ordinary revenue system was to collect a share of the produce direct from the cultivators through their headmen. With the decay of the Mughal power, however, the practice of farming the revenues grew up, and the ex-officials, court favourites, and men of local influence who undertook to farm the revenues gradually acquired the name and position of *zamīndārs*.

Originally the *zamīndārs* paid into the treasury the whole amount collected by them from the cultivators, less a definite allowance for maintenance, for collection charges and the upkeep of accounts, and for expenditure on charity. Gradually, however, the contributions to the treasury tended to become fixed, though always liable to enhancement, and meanwhile the *zamīndārs* exploited new sources of income over and above the rental upon which their revenue was calculated. They acquired private lands, realized rent from the cultivators of waste lands, imposed cesses or additions to the rent rates, and levied dues on fisheries and tolls on markets. By degrees also the *zamīndār's* office became hereditary, and the practice of obtaining a fresh grant or authority to succeed from the ruling power dropped into desuetude.

During the two centuries which followed Todar Mal's settlement, the farmer class of *zamīndārs* had acquired a position similar to that of the original landholders of the Province, and

they were gladly recognized as proprietors of the soil by Lord Cornwallis, who was 'persuaded that nothing could be so ruinous to the public interest as that the land should be retained as the property of Government.' This bias was shared by the Directors in 1792, and they were 'for establishing real, permanent, valuable rights in our Provinces, and for conferring such rights upon the *zamīndārs*.' The proprietary title of the *zamīndārs* was therefore not questioned at the time of the Permanent Settlement; and the Regulation which gave it the force of law prescribed that the *zamīndārs*, with whom the Decennial Settlement had been made, and their heirs and lawful successors, should be allowed to hold their estates at the same assessment for ever. The right of transfer of their estates was also conferred upon them. The present right of the *zamīndārs*, therefore, is freely heritable and alienable. It is, however, limited by the rights of their tenure-holders and ryots, and also by the Government prerogative to sell the estate in default of full payment of revenue on the due date.

Classes of tenants.

There are two main classes of tenants—tenure-holders and ryots. It is often difficult to distinguish between the two classes in individual cases, but broadly a tenure is an intermediate interest between the *zamīndār* and the cultivating ryot. For practical purposes the essential difference between a tenure-holder and a ryot is that the former can sublet to an under-tenure-holder or to a ryot, while the sub-tenant of a ryot must necessarily hold the inferior status of an under-ryot. The distinction is of importance, because a sub-lease to an under-tenure-holder or ryot commands a bonus, which is not ordinarily the case with a sub-lease to an under-ryot; but, on the other hand, the position of a settled ryot, who holds an occupancy right in all lands held or acquired by him in a village, is much coveted by the tenure-holder, whose rights are more restricted.

Tenure-holders.

Tenures are distinguishable into four classes according to their origin. Many ancient tenures existed before the creation of the *zamīndāris* to which they are now subordinate. At the time of the Permanent Settlement, many of these tenures, known as *taluks*, were separated from the *zamīndāris*, and formed into distinct estates, paying revenue direct to Government. A large number of the smaller tenures, however, remained subordinate to the *zamīndārs*. A second class of tenures was created by the *zamīndārs*, with a view to protect their property from the ruin which involved so many estates immediately after the Permanent Settlement. The *patnī*

taluk, which originated in Burdwān and has since spread over other parts of Bengal, is an estate within an estate, the rent being fixed in perpetuity and the tenure being saleable by the Collector at the *zamīndār's* instance for arrears, precisely in the same way as the parent estate. In some parts the process of sub-infeudation has proceeded much farther; the *patnīdār* has given his lands in permanent lease to *dar-patnīdārs*, and the *dar-patnīdārs* have done the same to *sī-patnīdārs*.

The reclaiming tenure is a bait which tempts the petty capitalist to spend his resources on the land. It is found all along the coast, where the low mud flats are being gradually raised by deposits of silt. The great rivers discharge into the Bay of Bengal an immense mass of sand, clay, and vegetable débris, which is again carried inland by the action of the tide. The coast-line is ever encroaching on the Bay, and as the deposits rise above water-level they become clothed with mangrove jungle, and if left to themselves would in time rise to high spring-tide level. But the impatience of the reclaimer forestalls this natural process; and soon after the surface emerges, an earthen embankment is thrown round it to exclude the salt tidal water, and the newly-formed islet is cultivated. The natural growth of the surface is thus arrested, and the deposit of silt is confined to the beds of the tidal channels, which gradually rise until they threaten to overwhelm the new reclamation. Perpetual leases at low rents are needed to persuade the capitalist to undertake the heavy initial and recurring expenditure required for the protection of such reclamations, and similar leases are often granted in the case of waste land when heavy expenditure has to be incurred in felling dense forests and undergrowth.

There is a fourth class of tenures, which is probably the most numerous of all, and which may be described as the land-jobbing tenure. This class is to be distinguished from the reclamation leases described above, though the nomenclature is generally the same. It is found in enormous numbers in BACKERGUNGE* DISTRICT, where, probably owing to the depredations of Arakanese raiders in the seventeenth and eighteenth centuries, reclamation in the coast tract was arrested until the surface had risen above flood-level, and where comparatively small expenditure on embankments is required. The profits of agriculture are very great in this District, as plentiful crops are reaped which find a good market in Calcutta, and the rich soil, which is periodically fertilized by silt deposits from the overflow of the great rivers, requires no manure.

The price of rice is also continuously rising, owing to the rapid growth of population, the extension of non-food crops, such as jute, and the inflation of the currency caused by the export of jute from East Bengal. The profits of agriculture are therefore steadily increasing, while at the same time the practice of granting perpetual leases has stereotyped rent rates. The cultivator is not, however, allowed to absorb the whole of the increase in agricultural profits, but is compelled to disgorge a portion of it in the shape of *abwābs*, or cesses proportionate to his rental, and each new cess affords subsistence to a land-jobbing tenure-holder. The ryot, moreover, ekes out his income by subletting at rack-rates to under-ryots, and the rents paid by the latter are always rising.

The system may best be illustrated by taking the simplest case of a *zamīndār* who has given a perpetual lease to a ryot. The ryot grows rich, and the *zamīndār* is in need of money; he offers the lease of a tenure of his holding to the ryot at a reduced rent, upon payment of a bonus equivalent to twenty years' purchase of the difference between the two rents. If the ryot refuses, a third person is offered the tenure, and he probably squeezes a cess out of the ryot. The same process is repeated shortly afterwards, either by the *zamīndār*, who may create a tenure between himself and the new tenure-holder, or by the latter, who creates an under-tenure between himself and the ryot. The creation of each new tenure is the occasion for the payment of a substantial bonus, for which the lessee recoups himself by extracting a cess from the man below him, which is ultimately passed on to the ryot.

Tenures of the classes described above are usually hereditary and held at fixed rates of rent. Temporary farming leases are common in Bihār and on Government estates; they are granted for a short term, either at a fixed rent or a percentage of the rental of the farm.

The status and privileges of all classes of tenants have been secured by the Bengal Tenancy Act of 1885. When Lord Cornwallis settled the revenue of the *zamīndārs* in perpetuity in 1793, he apparently intended to confer upon the ryots a similar immunity against enhancement of their rents, and power was reserved to legislate in future, if necessary, for the protection and welfare of the tenantry. The matter was, however, lost sight of for half a century. The terms at which the Decennial Settlement had been concluded were severe at the time, while the proprietors were unaccustomed to the punctual payments necessary to protect their estates from sale. Ryots.

The consequence was that many proprietors defaulted and their estates were sold, and the attention of Government was for twenty years concentrated on efforts to realize the revenue with punctuality. The *zamīndārs* complained of the difficulty they experienced in collecting rents punctually from their tenants, and in 1799 special powers were given them to seize the person of a defaulting ryot and to distrain on his crops summarily. These powers were grossly abused and led to much oppression, but it was not until 1859 that a remedy was found. Act X of that year conferred on the ryots a right of occupancy in lands cultivated by them for twelve years, and protected occupancy ryots from enhancement of rent except on certain specified grounds; the landlord's power of distraint was also restricted. This Act failed, however, to give the needed protection to the tenantry; and after prolonged discussion a new Tenancy Act was passed in 1885, which provided that every ryot who has held any land in a village for twelve years acquires thereby a right of occupancy in all the land he may hold in the village. The result is that a proportion of all the ryots in the Province, varying from four-fifths to nine-tenths, have occupancy rights in their lands. In the case of such ryots, enhancement by contract is limited to an addition once in fifteen years of one-eighth to the previous rent, and a civil court can enhance the rent only on certain specified grounds, and even then only once in fifteen years. Whether such holdings are transferable or not depends on local custom. A small number of ryots hold at fixed rates of rent, and the remainder are without a right of occupancy. Even the latter, however, cannot be ejected except in execution of the decree of a competent court, nor can their rents be enhanced at shorter intervals than five years.

Produce rents are to be found all over the Province, and are especially common in South Bihār, where landlords maintain irrigation works or embankments. Sometimes the value of the standing crop is estimated, and the share to be paid as rent is fixed accordingly; sometimes the grain is divided on the threshing-floor. The landlord generally takes about half the crop, exclusive of the straw.

No attempt has yet been made to check the transfer of land by ryots, except in Chotā Nāgpur, the Santāl Parganas, Angul, and the Kālimpong Government estate, where transfers to non-agriculturists, or, in some cases, to any outsider, are forbidden, and where the prohibition is strictly enforced at the time of settlement of the rents.

In the Bengal Tenancy Act of 1885 power was taken by Government to order a survey and record-of-rights in any local area. Such operations have since been completed in the four North Bihār Districts of Sāran, Champāran, Muzaffarpur, and Darbhangā, and are in progress in portions of Monghyr, Bhāgalpur, and Purnea Districts, and in Rānchī and Backergunge*. The object of these operations is to frame an authoritative record of the status and rents of the tenantry, with a view either to protect them against arbitrary eviction and illegal enhancement, or to compose or avert agrarian disputes. Similar operations have been conducted on a large scale in estates under the administration of the Court of Wards, with a view to preparing correct rent-rolls, and also in a number of estates upon the application of the proprietors. Surveys and records-of-rights.

The land revenue in Bengal is so small a fraction of the produce that it can have no bearing on the ability of the people to withstand famine. The produce may be valued at not less than Rs. 20 per acre, or 9796 lakhs for the Province as a whole, of which the total cropped area was estimated at 76,454 square miles in 1903-4. The rental of 1670 lakhs, therefore, represents 17 per cent., and the revenue of 400 lakhs only about 4 per cent. of the value of the produce. Remissions and suspensions of the revenue are very rarely granted in permanently settled estates, as the incidence of the revenue is so light that they are unnecessary. In temporarily settled and Government estates, however, remissions are allowed for special reasons, among which are deterioration of land, drought, and damage caused by floods and cyclones. Connexion of land revenue with famine.

The production of opium in Bengal and the United Provinces is a Government monopoly, and the administration of the operations is in the hands of the Board of Revenue, Bengal, under whom are two Agents, stationed at Patna and Ghāzīpur respectively, and a subordinate staff of sub-deputy and assistant opium agents. The poppy is grown in ten Districts in Bengal and in thirty-six Districts of the United Provinces. The total area under cultivation (deducting failures) averaged 823 square miles during the ten years ending 1890, and 820 square miles during the subsequent decade. In 1900-1 it was 948 square miles, of which 345 square miles were in Bengal and 603 square miles in the United Provinces; and in 1903-4 it was 1,004 square miles, of which 324 square miles were in Bengal and 680 in the United Provinces. The process of manufacture is carried on in factories at the head-quarters of each Agency. The legal position is Miscellaneous revenue. Opium.

governed by the provisions of Acts XIII of 1857 and I of 1878.

The cultivation of the poppy is permitted only under annual licences granted for the purpose; sowing is restricted to the area applied for, and the whole of the produce must be sold to Government at a fixed rate, which for some years has been Rs. 6 per seer (2 lb.) of 70° consistency. Advances free of interest are given to the cultivators, whose accounts are adjusted after the opium has been taken over. Application for a licence is entirely optional.

The opium is manufactured in two forms: 'provision opium' for export principally to China and the Straits Settlements, and 'excise opium' for consumption in India. The difference lies in the consistency and size of the cakes and the method of packing. 'Provision opium' is dispatched to the warehouses of the Board of Revenue in Calcutta, where it is sold at public auction, the number of chests to be offered for sale during the year being fixed by the Government of India, with reference to the quantity manufactured and the stock held in reserve. During the period 1881–90, a yearly average of 54,664 chests (each containing 40 cakes weighing about 140 lb.) was exported from Calcutta, and 43,164 chests during the succeeding decade. In 1900–1 47,950 chests, and in 1903–4 48,218 chests, were shipped, and the normal sale standard is now 48,000 chests per annum. The gross value of the chests sold averaged about 6½ crores between the years 1881 and 1890, and a little over 5 crores between 1891 and 1900. In 1900–1 it amounted to about 6⅓ crores, and in 1903–4 to just over 7 crores. 'Excise opium' is supplied to all Government treasuries for sale to licensed vendors. The price, which is fixed by Government, varies in different parts of the Province. At the present time it ranges from Rs. 28 to Rs. 31 per seer in Bengal proper; in Orissa it is Rs. 33; and in the Patna Division, where the danger of smuggling is greatest, it is only Rs. 17 per seer. With the retail sale of the drug to the actual consumers the Opium department has no concern; this is under the control of the Commissioner of Excise, as described farther on.

The net yearly revenue of the Opium department averaged 4¼ crores from 1881 to 1890; from 1891 to 1900 it was a little over 3 crores; in 1901 it amounted to about 4 crores, and in 1903 to 3·98 crores. The revenue varies from year to year according to the quantity of opium available for sale and the price realized for it. A standard quantity to be produced yearly is periodically fixed by Government, and the maximum

area to be cultivated is calculated accordingly; but the area actually under poppy depends also on the willingness of the cultivator to grow it. The crop, though on the average a remunerative one, is very sensitive to climatic conditions, and a series of unfavourable years may create a prejudice against it. The amount realized by the sale of 'provision opium' depends partly on the quantity offered for sale, and partly on the nature of the season in China and the area under cultivation there. Differences in the rate of exchange between the two countries may have a disturbing influence upon the market, and the interest charged by the Calcutta banks also affects it.

The administration of excise, including the retail sale of opium, is vested in the Excise Commissioner, subject to the general control of the Board of Revenue. In the Districts the Collector is in charge, assisted by a Deputy-Collector (who is, in the more important Districts, a special officer) with a clerical, preventive, and, where Government distilleries have been established, a distillery staff. The revenue is derived from imported liquors; country spirits, including country rum; fermented liquors made in India, including beer, *tāri* (fermented date juice), and *pachwai* (rice beer); hemp drugs, including *gānja*, *siddhi* or *bhang*, *charas*, and *mājum*; opium; and cocaine. The revenue is derived from (*a*) the duty levied on excisable articles passing into consumption, other than imported liquors the duty on which is credited to the Customs revenue, (*b*) the fees paid for a licence to manufacture and sell excisable articles, and (*c*) the fees paid on spirits manufactured in distilleries. Excise.

The figures on the next page show the excise revenue for the decades 1881–90 and 1891–1900 (averages), and for the years 1900–1 and 1903–4[1], in thousands of rupees.

The causes leading to this rapid expansion have been indicated in the section on Finance. The incidence of excise revenue per head of the population was $2\frac{1}{4}$ annas in 1881–2, $2\frac{1}{2}$ annas in 1891–2, $3\frac{1}{6}$ annas in 1901–2, and $3\frac{1}{2}$ annas in 1903–4.

Country spirits and *tāri* are preferred in the dry Districts, such as those of Bihār and Chotā Nāgpur, with pronounced hot and cold seasons, and containing a large non-Muhammadan population. The aboriginal tribes brew *pachwai* at home, but consume the stronger spirit when it is within their means. The consumption of *gānja* is very general; it is greatest in wet

[1] The excise revenue in Bengal as now constituted was Rs. 1,42,13,000 in 1904–5.

and malarious Districts, such as those of Bengal proper and part of the Bhāgalpur Division. Opium is also in general use, but chiefly in the Districts lying on the sea-board and where the Muhammadan population is large.

Heads of revenue.	1881-90.	1891-1900.	1900-1.	1903-4.
	Rs.	Rs.	Rs.	Rs.
Imported liquors	2,07	2,67	3,30	3,77
Country spirits manufactured after the native method	48,05	55,36	67,67	79,03
Country spirits, including country rum, manufactured after the English method, and beer	1,01	3,58	3,48	2,34
Tāri	7,00	9,89	10,39	10,96
Pachwai	1,82	3,83	5,34	5,98
Hemp drugs	20,26	26,26	30,20	34,55
Opium	19,85	23,09	25,91	25,92
Miscellaneous	7	14	19	41
Total excise revenue	1,00,13	1,24,82	1,46,48	1,62,96
Customs revenue from imported liquors	14,20	18,49	20,99	22,32

The consumption of excisable articles is closely watched, and facilities for obtaining them are allowed only in order to meet an ascertained demand, or for the prevention of illicit practices. The number of licences issued is carefully considered, and the sites for licensed shops are selected with due regard to local feeling. The fees for a licence are ordinarily settled by auction, subject to a minimum which is fixed with reference to the estimated sales at each shop and the average fees previously paid for the licence. Educated opinion is opposed to the use of stimulants, and the general feeling of the people condemns over-indulgence. The consumption has, however, increased rapidly among the educated classes, who, next to Europeans, are the chief purchasers of imported liquors, and especially of the cheap brands manufactured from German spirit and sold, under English names, in bottles with attractive labels. These brands compete with the country-made spirit in cheapness, and are believed to be stronger.

Salt.

The revenue on salt is levied mainly in the shape of an import duty—formerly Rs. $2\frac{1}{2}$, reduced in 1903 to Rs. 2, in 1905 to Rs. 1-8, and in 1907 to R. 1 per maund of 82 lb.—which is realized by Customs authorities. There are also certain miscellaneous receipts, of which the most important are the rents paid for the storage of salt in Government warehouses and the fees realized upon the passes granted for its removal. The Bengal coast is unsuitable for the local manufacture of salt,

by reason of the dampness of the climate and the large amount of fresh water discharged into the Bay of Bengal by the Ganges and the Brahmaputra, and the manufacture of salt in the Province has been discontinued since 1898 and is now forbidden. The quantity annually manufactured by Government and private individuals during the ten years 1881–90 averaged about 280,000 maunds, and during the succeeding seven years about 120,000 maunds. The quantity imported yearly from within India and from other countries during the periods 1881–90 and 1891–1900 averaged $9\frac{1}{2}$ and 10 million maunds respectively. In 1900–1 it was about 9 million maunds, and in 1901–2 about $13\frac{1}{2}$ million maunds. The average consumption of salt per head of the population during each of the four years 1880–1, 1890–1, 1900–1, and 1903–4 was $5\frac{3}{16}$, $5\frac{1}{2}$, $5\frac{3}{8}$, and $5\frac{5}{8}$ seers respectively. The gross revenue from this source, exclusive of miscellaneous receipts, averaged 2·18 crores between the years 1881 and 1890, and 2·59 crores between 1891 and 1900, while in 1900–1 it amounted to 2·66 crores, and in 1903–4 to 2·27 crores.

The course of the salt trade has been greatly influenced by the substitution of steamships for sailing vessels and by the improvement in the means of communication in India. The former circumstance has given a great impetus to the practice of bonding salt, as steamers are unable to waste time in port. The opening of the East Coast Railway encouraged the importation of Madras salt into Orissa, and it is now acquiring a firm hold of the markets there. At the present time the United Kingdom supplies about half the salt imported by sea, Aden and the Red Sea ports about 31 per cent., Germany approximately 10 per cent., while the remainder comes from the Persian Gulf, Port Said, and Madagascar. The quantity supplied from the United Kingdom is declining, owing to competition from other sources and especially from the Red Sea ports. Preventive establishments are employed to cope with the illicit manufacture of salt along the coast and in other saliferous areas, and the possession and transport of salt are regulated by a system of passes.

The stamp revenue is collected under the Indian Stamp Act (II of 1899) and the Court Fees Act (VII of 1870). Stamps are broadly divided into 'non-judicial,' or revenue stamps, and 'court-fee,' or judicial stamps. Of non-judicial stamps there are two main classes, adhesive and impressed. Adhesive stamps include share transfer stamps, foreign bill stamps, and stamps for use by notaries, advocates, *vakīls*, and attorneys. Stamps.

Impressed stamps comprise impressed stamp paper and impressed labels, and forms of different descriptions, such as skeleton cheques, &c. For the distribution of stamps a central dépôt is maintained at Calcutta, while every treasury is a local, and every sub-treasury a branch dépôt. There are, in addition, numerous licensed vendors, who are allowed a discount on the stamps purchased by them. The net revenue derived from the sale of judicial stamps during the decades 1881–90 and 1891–1900 averaged 93 and 117 lakhs respectively; in 1900–1 it was 131 lakhs, and in 1903–4 it[1] was 143 lakhs. The revenue from non-judicial stamps[1] during the same four periods amounted to 34, 44, 49, and 50 lakhs respectively.

The growth of litigation mainly accounts for the progressive increase in the sale of judicial stamps, but probate duty also shows a tendency to yield larger receipts. The revenue derived from non-judicial stamps develops along with the normal progress of the country, but in particular years the state of the harvest may cause fluctuations.

Income-tax.

Income-tax is levied on non-agricultural incomes under the provisions of Act II of 1886 as recently amended (see *Imperial Gazetteer*, Vol. IV, chap. viii). The minimum income assessable under the original Act was Rs. 500; but this has now been raised to Rs. 1,000 per annum, upon which, and up to Rs. 2,000 a year, the tax is levied at the rate of 4 pies in the rupee. On larger incomes the rate is 5 pies in the rupee.

The assessment and collection of the tax outside Calcutta are subject to the control of the Collector, under the supervision of the Commissioner and the Board of Revenue; but the actual administration of the Act is in the hands of a Deputy-Collector, who is usually in charge of excise duties also. For Calcutta, which, with the town of Howrah, constitutes a separate District for income-tax purposes, there is a special Collector of Income-tax. Since the enhancement of the minimum taxable income, assessors are appointed to Divisions, and the work of assessment in the different Districts in each Division is distributed among them by the Commissioner in consultation with the District officers. The rates of pay of the assessors are Rs. 100, Rs. 90, and Rs. 80 a month. In Calcutta seven assessors are employed, who belong to two grades with pay of Rs. 250 and Rs. 200 respectively.

The net revenue derived from the tax on incomes during the

[1] In 1904–5 the net receipts from the sale of judicial stamps in Bengal as now constituted was 94·38 lakhs, and from the sale of non-judicial stamps 34·49 lakhs.

five years 1886–90 averaged 37·5 lakhs. During the next ten years it averaged 45·7 lakhs, and in 1901 it amounted to 54·4 lakhs; in 1902–3 it was 56·5 lakhs, but in 1903–4 (after the increase of the minimum assessable income) it fell to 47·7 lakhs[1]. The incidence of the tax per head of the population during the same five periods averaged 0·06, 0·06, 0·07, 0·08, and 0·06 of a rupee, while the average number of assessees was 109,000, 119,000, 134,000, 135,000, and 56,000, or 1·6, 1·7, 1·8, 1·8, and 0·8 per 1,000 of the population respectively.

The work of the Calcutta Custom House is directed by a Collector of Customs[2], who is subject to the control of the Board of Revenue as the chief Customs authority, and is assisted by five Assistant Collectors. The examination of goods and their valuation for customs purposes are entrusted to a staff of eighteen appraisers, while the guarding of vessels and patrolling of the port in order to prevent smuggling, the control over the discharge of cargo, and the loading or unloading of salt at the *golās* (warehouses) rest with a special establishment of about 205 officers under the orders of the Superintendent of the Preventive Service and Salt department. Customs.

Details of the tariff are given in the *Imperial Gazetteer* (Vol. IV, chap. viii); it will suffice to state here that the ordinary import duty is 5 per cent., either *ad valorem* or on a tariff valuation. The most important exceptions are cotton piece-goods, assessed at 3½ per cent.; iron and steel, at 1 per cent.; petroleum below a certain flashing point, at 1 anna per gallon; and machinery, railway material, and raw cotton, which are free. The duty on salt has varied; it was reduced from Rs. 2–14 to Rs. 2 per maund in 1882, but was again raised to Rs. 2–8 per maund in 1888, at which figure it continued till March, 1903, when it was again reduced to Rs. 2 per maund. It has recently (1907) been still further reduced to R. 1 per maund. A duty was first imposed on kerosene oil in 1888; and in 1899 countervailing duties were placed upon bounty-fed sugar.

The total customs revenue in Bengal averaged 247 lakhs during the period 1881–90, and 352 lakhs during the following decade In 1900–1 it amounted to 427 lakhs[3], and in 1903–4

[1] The revenue from the income-tax in Bengal as now constituted was 41·83 lakhs in 1904–5.

[2] The Collector is now a member of the Imperial Customs Service.

[3] These figures exclude collections in inland treasuries on bonded salt. The receipts on their account averaged 8 lakhs a year between 1895 and 1900, and in 1900–1 and in 1903–4 amounted to 26 lakhs.

to 384 lakhs. Excluding the receipts from salt and rice, the import duties in 1903-4 yielded 150 lakhs, to which cotton-goods contributed 51 lakhs, mineral oils 18 lakhs, metals 16 lakhs, and sugar (inclusive of countervailing duties) 9 lakhs. The only export duty is that on rice, which realized 18 lakhs in 1880-1, nearly 22 lakhs in 1900-1, and 19 lakhs in 1903-4.

Local and municipal.

In discussing the rise and present position of local institutions it is necessary to distinguish between town and country. In towns the need for proper roads, water-supply, and sanitary arrangements is far greater than in rural tracts, while, as their area is limited, it is comparatively easy for the representatives of the people to deal with these matters. The inhabitants of towns are also more advanced and better able to express their requirements than those of the scattered villages in the interior. It follows that the first steps in the direction of delegating to the natives of the country a share in the administration of public affairs were taken in towns, and in this, as in other matters, Calcutta naturally led the way.

Local self-government in the Mofussil.

Outside towns the rise of local self-government in Bengal dates from 1870, when District committees were created for the administration of the funds set apart for the construction, repair, and maintenance of roads, bridges, &c., which were derived mainly from the road cess. They consisted of the District Magistrate and other officers of the District staff, and of a certain number of payers of road cess appointed on the nomination of the local authorities. District school committees, consisting partly of officials and partly of private persons nominated as above, were at the same time formed for the control of education, and were made responsible for the supervision of all Government schools and the allotment of the sums set aside for grants-in-aid of private schools. Owing partly to the constitution of the committees, and partly to the fact that the powers delegated to them were very circumscribed, these measures were not attended with much success, and local self-government in the Mofussil was for some years little more than a name. At the instance of Lord Mayo, a fresh scheme was drawn up by Sir Ashley Eden, the Lieutenant-Governor, with the threefold object of relieving the Provincial authorities of some portion of the ever-growing details of the work of administration, of reconciling the public to the burden of local taxation, and of conferring on the people or their representatives greater powers of control over expenditure on objects of local importance. This scheme was the foundation of the Local Self-Government Act, III (B.C.) of 1885, which is still in force.

This Act provides for the constitution of three classes of local authorities—the District board with jurisdiction over the whole District, a local board for each subdivision, and Union committees for smaller areas where circumstances may indicate the desirability of appointing them. The District board is the principal local authority, and the local boards and Union committees work in subordination to it, exercising such powers and administering such funds as the District board may direct. District boards have been constituted throughout Bengal, save only in Darjeeling and a few remote tracts; local boards have also been formed in most Districts. On March 31, 1904, there were 42 District boards and 104 local boards in Bengal[1]. The system of village Unions has not been fully developed, and only 58 have as yet been created, chiefly in the Burdwān and Presidency Divisions. Half the members of District boards are appointed by Government and half are elected by local boards; where there are no local boards, the District board consists entirely of members appointed by Government. On March 31, 1904, the 42 District boards contained in all 846 members[2]. Of these, 221 were members *ex officio*, 292 were appointed by Government, and 333 were elected by the local boards. The Collector of the District has in all cases been appointed chairman. The area dealt with by each board is so large, and the interests of different parts of it are so divergent, that no non-official member would be able to perform effectively the duties of the post or to weigh impartially the conflicting claims of different localities. The members of local boards are appointed partly by nomination and partly by election, one or more members being elected for each *thāna*. All residents who possess a small property qualification are entitled to vote, but the number who actually do vote is usually very small. Similar rules have been framed for the constitution of Union committees.

Constitution of boards.

The District boards have full control over all roads and bridges, save on a few main lines of communication of more than local importance. They are also entrusted with the maintenance and supervision of all primary and middle schools, the management of pounds and most of the public ferries, the control over and upkeep of dispensaries, the provision of

Powers and duties.

[1] The number of District boards in Bengal after the recent territorial changes was 29 and of local boards 76.

[2] The number of members of District boards in Bengal as now constituted was 580 in 1904, of whom 148 were members *ex officio*, 188 were appointed by Government, and 244 were elected.

a proper water-supply, village sanitation, &c. When scarcity occurs, it becomes their duty to subordinate all other objects to the special consideration of saving life, and they are expected to devote their whole available resources to affording relief. If the scarcity is not serious or widespread, the District board is left to cope with it, with such financial assistance as may seem to be needed; but when famine supervenes, the management of relief operations is taken over by Government. The immediate administration of the roads and buildings under the control of the District board is vested in the District Engineer, who is appointed and paid by the board, while that of the schools subordinate to it lies with the Deputy-Inspector of schools, an officer of the Educational department, who, in respect of these schools, works in subordination to the board.

The chief functions hitherto delegated to local boards are the care and maintenance of village roads, the management of pounds, and the charge of ferries. In a large number of cases they have also been entrusted with powers of varying extent with regard to primary education, and in a few cases with the control of dispensaries and the maintenance of District roads. As at present constituted, local boards have not been a very great success, and several of those at the head-quarters of Districts have recently been abolished.

The Union committees exercise control over pounds, village roads, sanitation, and water-supply. In regard to primary schools, their authority is restricted to inspection. Their income consists of the receipts from pounds situated within the Union, a lump sum granted by the District board for village roads, sanitation, and water-supply, and funds raised under section 118 of the Act. In some Districts these committees are reported to have done useful work within the narrow limits of their powers and resources.

Income and expenditure.

Nearly 53 per cent. of the income of District boards is derived from the road cess levied on land, under the provisions of Act IX (B.C.) of 1880. A considerable sum is also derived from pounds and ferries and special grants made by Government. The main heads of expenditure are public works (59 per cent. of the total), education (22 per cent.), medical (5 per cent.), and general administration (4 per cent.). Statistics of income and expenditure are given in Table XI at the end of this article (p. 181). The duties of the boards tend to outgrow their income, and it is becoming increasingly difficult for them to spare money for the construction of feeder-roads to railways and other new works. Government has therefore recently

helped to restore the equilibrium by assigning to the Commissioner of each Division a considerable sum to be allotted by him to the boards which stand most in need of assistance. The total of the special grants thus made amounted to 15 lakhs on April 1, 1904; and in 1905 a further grant of 12½ lakhs was made from Imperial funds to the District boards.

Municipalities. The history of municipal government in CALCUTTA is dealt with in the article on that city. The first enactment having for its object the creation of local bodies elsewhere was Act XXVI of 1850, which authorized the Lieutenant-Governor, on the application of the inhabitants of any place of public resort or residence, to extend the Act to it and to appoint commissioners who, by the levy of a rate on houses or of town duties or otherwise, were to make better provision for purposes of public health or convenience. The Darjeeling municipality was constituted in 1850 under the provisions of this Act; but otherwise very little advantage was taken of it or of a subsequent Act (XX of 1856), the main object of which was to make better provision for the appointment of police *chaukīdārs* in towns, but which also provided that any surplus funds raised in a town, primarily for the above purpose, might be applied to cleansing or lighting or otherwise improving it. These two Acts were superseded in the larger towns by Act VI of 1868, which repeated their provisions in a modified form. The first real attempt at inaugurating municipal government was made in 1864, when the District Municipal Improvement Act was passed. This Act authorized the Lieutenant-Governor to appoint municipal commissioners for any town to which it was extended, with power to levy certain rates and taxes to meet the cost of conservancy, general improvement, and police.

The enactments were consolidated and amended by Act V (B.C.) of 1876, in which year there were in existence 24 municipalities under Act III of 1864 and 2 under Act XXVI of 1850, 70 'unions' under Act XX of 1856, and 95 'towns' under Act VI of 1868. The new Act recognized four classes of municipal institutions: namely, first and second-class municipalities, 'unions,' and stations. The elective principle was allowed in the case of municipalities, provided that one-third of the ratepayers desired it; but this condition was fulfilled in respect of only three municipalities. The Magistrate of the District or of the subdivision, as the case might be, was as a rule *ex-officio* chairman of all municipalities situated within his jurisdiction; power was given to the Lieutenant-Governor

to appoint other persons, but it was exercised only in a single case.

This Act was, in its turn, superseded by Act III (B.C.) of 1884, which is still in operation, and which provides for the election of a majority of the commissioners and gives to them a far greater degree of independence. By this Act the distinction between first and second-class municipalities was abolished, and the other corporate bodies known as 'unions' and 'stations' were extinguished. Under its provisions the ratepayers of 125 municipalities, out of a total of 161, have obtained the privilege of electing two-thirds of their commissioners, and in 109 cases the latter have been empowered to choose their own chairman. In the remaining towns, which are either very backward or are divided by contending interests or strong party feeling, Government has reserved to itself the power of appointing the commissioners or the chairman, but in only twenty-seven municipalities does it appoint both. Except in Howrah, the municipalities have been relieved of the charges on account of the local police, over which they exercised practically no control, on the understanding that the funds thus set free must be spent on works of general utility and may on no account be devoted to the reduction of taxation. The charges previously borne by Government on account of dispensaries and hospitals within municipal limits have at the same time been transferred to these bodies. The municipal law has now been extended to all places of an urban character, where alone it can be satisfactorily worked.

Act III of 1884 has been amended by Acts IV (B.C.) of 1894 and II (B.C.) of 1896. By these enactments the elective principle has been further developed, and the powers and responsibilities of the municipal commissioners have been enhanced. The scope of municipal expenditure has been extended, and now includes the establishment and maintenance of veterinary institutions and the training of the requisite staff, the improvement of breeds of cattle, the training and employment of female medical practitioners, the promotion of physical culture, and the establishment and maintenance of free libraries. The commissioners may order a survey and organize a fire brigade; they may control the water-supply when its purity is suspected, even to the extent of interference with private rights; larger powers of precaution are conferred in the case of ruined and dangerous houses and other erections, as well as increased powers for the general regulation of new buildings.

Out of the total number of municipalities[1] in existence on March 31, 1904 (excluding Calcutta), only two, Howrah and Patna, contained over 100,000 inhabitants; 98 contained from 10,000 to 100,000, and in 61 there were less than 10,000 inhabitants. The total population within municipal limits was 2,871,249, and the incidence of taxation per head of the population was Rs. 1–3–11. The total number of municipal commissioners was 2,236, of whom 1,160 were elected and 1,076 appointed; 336 were official members and 1,900 non-official; 261 were Europeans and 1,975 natives. The land-holding classes and members of the legal profession provide about 50 per cent. of the commissioners, and of the remainder the majority are Government servants or traders. Statistics of municipal finance are given in Table XII at the end of this article (p. 182).

Public works. Organization of department.

There are two branches of the Public Works department, one of which is in charge of roads and buildings and miscellaneous public improvements, and the other controls irrigation, marine matters, and railways. Each branch is under a Chief Engineer, who is also secretary to Government. The Roads and Buildings branch administers five circles[2], three of which are controlled by Superintending Engineers and two by Executive Engineers, who are designated Inspectors of Works, and whose duties are to inspect the work done under the Engineers employed by the District boards and to exercise professional control over their proceedings. The Imperial and Provincial buildings and roads in these circles are in charge of the District Engineers, where the District boards concerned have accepted the responsibility for their upkeep, and of the Inspectors of Works in certain Districts in which those bodies have not accepted such a responsibility. The Superintending Engineers have control of Public Works divisions held by Executive Engineers, and they also act as Inspectors of Works in their circles. The Roads and Buildings branch also includes a temporary charge, comprising the buildings connected with the

[1] In the present area of Bengal, there were 127 municipalities in 1904, of which 75 contained from 10,000 to 100,000 inhabitants, while 50 had less than 10,000 inhabitants. The total population within municipal limits was 2,354,180, and the incidence of taxation was Rs. 1–4 per head. The total number of municipāl commissioners was 1,753, of whom 913 were elected and 745 were nominated; 249 were official and 1,504 non-official members; 231 were Europeans and 1,522 natives.

[2] The number of circles in Bengal, as at present constituted, is four, of which three are controlled by Superintending Engineers and one by an Executive Engineer, who is designated Inspector of Works.

Imperial Agricultural Institute at Pūsa, which is under the control of a superintendent of works.

The Irrigation branch comprises four circles, each of which is under a Superintending Engineer. In Irrigation circles the Executive Engineers also carry out the works of the Roads and Buildings branch within the limits of their divisions, and the Superintending Engineers act as Inspectors of Works. Three revenue divisions formed for the assessment and collection of canal water rates are held by Deputy-Collectors under the control of the Superintending Engineer of this branch. The main lines of railway and their branches are administered directly by the Government of India, the Government of Bengal controlling only a few minor railways undertaken by private enterprise.

Its operations. Rapid progress has been made in all departments since the introduction of Provincial finance in 1871. The Northern section of the Eastern Bengal State Railway was opened in 1878. The Orissa, Midnapore, and Hijilī Canals were completed in 1873, and, with the exception of the Calcutta and Eastern Canals, the entire Provincial canal system has been constructed since that date. The canalization of the Bhāngar channel in 1899 and the opening of the Madhumatī Bīl route in 1902 have greatly facilitated navigation by the Calcutta and Eastern Canals. As regards roads, the operations of the department are limited to the maintenance of a few trunk lines, and the initiative in the construction of new roads has been transferred to the District boards. Special efforts have, however, been directed to the improvement of communications in the Western Duārs*, and to the construction of feeder-roads to the railways.

Public buildings. Great improvements have been effected in the public buildings both in Calcutta and in the Districts. The antiquated structures in which the courts and public offices were formerly accommodated have been replaced by more spacious edifices built with some pretensions to architectural effect. Munsifs' courts, in particular, are being gradually transformed from primitive mat-and-thatch structures into permanent buildings of brick and mortar, and educational institutions are being provided with more suitable accommodation than was formerly thought sufficient for them, while the jails are being altered to meet modern sanitary requirements and to prevent overcrowding.

Among more or less recent buildings in Calcutta may be mentioned the Imperial Secretariat, Writers' Buildings, the

General Post Office, the Telegraph Office, the Surveyor-General's Offices, the Government of India Central Press, the High Court, the Office of the Geological Survey department, and the Economic and Art Museum. Of educational buildings, the most important are the Senate House, Presidency College, Hare School, School of Art, and additions to the Medical College. The Eden, Ezra, Sambhu Nāth Pandit, and Victoria Zanāna Hospitals and the Leper Asylum are new, and the Presidency General Hospital has been reconstructed.

Much attention has been devoted to the preservation of antiquities at PANDUA* and GAUR*; and the KONĀRAK temple and the BHUBANESWAR temples in Purī have been protected from decay.

Drainage schemes have been undertaken in HOOGHLY DISTRICT at a cost of 26 lakhs, whereby an area of 370 square miles has been drained and cultivation rendered possible.

Extensive waterworks have been constructed at DACCA*, BHĀGALPUR, MYMENSINGH*, HOWRAH, BURDWĀN, ARRAH, MURSHIDĀBĀD, and DARJEELING; a complete drainage scheme has been carried out at Patna, and electric lighting has been introduced at Dacca* and Darjeeling.

Army.

The strength of the army stationed within the Province in June, 1903, was 7,866, British troops numbering 3,221 and Native troops 4,645. Bengal is garrisoned by the Lucknow division of the Northern Army. The troops are distributed at eleven military stations. At Fort William in Calcutta there are British and Native infantry, British artillery, and a submarine mining company; and there are Native infantry and cavalry at Alipore. British and Native infantry and British artillery are cantoned at Barrackpore, and British and Native infantry and British artillery at Dinapore. Darjeeling with Lebong has British infantry and artillery, and a British regiment is stationed at Dum-Dum. The remaining cantonments of Rānchī, Buxa, Cuttack, and Gangtok are manned by Native infantry. No recruitment takes place among Bengalis.

There is an arsenal at Fort William, a foundry and shell factory at Cossipore, an ammunition factory at Dum-Dum, and a rifle factory at Ichāpur.

Volunteer corps have their head-quarters at Calcutta, Muzaffarpur, Darjeeling, Rānchī, Jamālpur, Bankipore, Dacca*, and Chittagong*; and the head-quarters of the Bengal-Nāgpur Railway Volunteer Rifles are at Kharakpur. The table on the next page gives the total strength of all the volunteer corps in 1881, 1891, 1901, and 1903.

	1881.	1891.	1901.	1903.
Naval	Nil	280	200	307
Artillery	Nil	218	561	422
Engineers	Nil	Nil	100	126
Light Horse or Mounted Rifles	61	822	1,106	1,049
Rifles	2,081	3,443	5,376	5,610
Total	2,142	4,763	7,343	7,514

Police and jails. Police. Early history.

The Calcutta police force, of which an account will be found in the article on CALCUTTA, has a history of its own, and has always been independent of the police system in other parts of the Province. In the early days of British rule the Bengal *zamīndārs* were required to keep up establishments of police for the maintenance of peace, but by Regulation XXII of 1793 this system was abolished: the police were placed under the exclusive control of Government officers, and the *zamīndārs* were forbidden to maintain any such force[1]. Every District was divided into police circles, with an area of about 400 square miles, and a *dāroga*, with a staff of subordinate officers, was appointed to each. To meet the cost of these measures, a police tax was imposed on traders and others who were specially interested in the maintenance of the force and who made no other direct contribution to the State; but this tax was abolished in 1797, when court-fees and stamp duties were introduced. The functions of the new force were at first confined to the arresting of accused persons; but in 1797 the police *dārogas* were directed to inquire regarding unnatural deaths, and in 1807 the Magistrate was authorized to order a police inquiry when he saw reason to distrust the truth of a complaint. From this small beginning was soon evolved the regular system of police inquiries now in vogue, which was placed on a legal footing by Regulation XX of 1817.

In 1808 Superintendents of police were appointed to certain divisions, where they exercised concurrent jurisdiction with the Magistrates of Districts and cities. These posts were abolished in 1829, but they were again revived in 1837. The civil police force in that year consisted of 444 *dārogas*, 1,353 subordinate officers, called *muharrirs* and *jemadārs*, and 6,699 *barkandāz* or constables.

[1] In 1807 the experiment was tried of associating landholders and others with the police, and of authorizing them in certain cases to receive charges and arrest accused persons and send them to the *dārogas*; but it proved a failure and was abandoned in 1810.

The whole force was reorganized and placed on its present footing by Act V of 1861. An Inspector-General of police was appointed, with complete powers of control in all departmental matters, and under him were 6 Deputy-Inspectors-General, 52 District Superintendents, 111 Assistant Superintendents, 570 inspectors, 936 sub-inspectors, 2,234 head constables, and 25,000 constables: these figures include the police in Assam, who were not separated from the Bengal police till 1871. The annual cost of the police force in Bengal rose from 36·6 lakhs in 1881 to 40·8 lakhs in 1891, to 51·7 lakhs in 1901, and to 54·9 lakhs in 1903. The composition of the force in those years is shown below:— Present constitution.

Grade.	Number in			
	1881.	1891.	1901.	1903.*
Deputy-Inspectors-General .	2	2	2	2
District and Assistant Superintendents . . .	73	71	75	88
Inspectors	143	155	169	175
Sub-inspectors . . .	697	903	1,649	1,719
Head constables . . .	2,191	2,357	1,704	1,722
Constables, including municipal police . . .	20,170	18,122	20,322	20,552

NOTE.—These figures are exclusive of the Calcutta force, the aggregate strength of which in 1903 was 3,323, and also of the railway and military police; they refer only to the executive force together with the reserves, both ordinary and armed.

* The corresponding figures for Bengal as now constituted were:—

Deputy-Inspectors-General	2
District and Assistant Superintendents .	57
Inspectors	210
Sub-inspectors	1,241
Head constables	1,566
Constables, including municipal police .	16,101

The Deputy-Inspectors-General are, in the main, inspecting officers, but they also arrange the posting of officers below the rank of Assistant Superintendent. The District Superintendents are in charge of the police of their Districts, but in all save purely departmental matters they are subordinate to the District Magistrates. Inspectors are employed chiefly on inspection, and the greater part of the investigations is conducted by sub-inspectors; much of this work was formerly done by head constables, but of late years it has, as far as possible, been taken out of their hands.

The higher grades of the police are filled on the results of a competitive examination in England and a competitive examination in India, restricted to nominated candidates, a certain number of appointments being also given by nomination to natives of the country. The competitive examination System of recruitment.

held in India is now, however, to be abolished. Inspectors are almost invariably promoted sub-inspectors, but in future a certain number are to be appointed direct. Sub-inspectors are appointed either by open competition or by nomination. As a result of the Police Commission of 1903, it has been decided that there is to be no competitive examination for the recruitment of sub-inspectors, but that they shall be, as far as possible, recruited direct, and that a maximum proportion of appointments shall be fixed for promotion from the rank of head constable. In every case they have to go through a year's training in the Bhāgalpur Training School, where they are taught law, the Police Manual as far as it concerns them, the reading and recording of finger-impressions, riding, and drill. Head constables are, as a rule, promoted constables. Constables are recruited at the head-quarters of each District. The percentage of foreigners (i.e. men of another District) which it is permissible to enlist varies in different Districts from 30 to 80. Constables receive some training at the head-quarters before being sent out to investigating centres, and when stationed at head-quarters they also get some instruction in drill. In future they will be trained at central schools which are now being established for the purpose.

Service in the police has, till very lately, been unpopular with educated natives. The appointment of the Police Commission and the hopes of an improved service have, however, of late led many well-connected natives to apply for direct appointment to sub-inspectorships.

Rural police. The rural police force of *chaukīdārs* or village watchmen is a very ancient institution, and, except in East and North Bengal, it is for the most part descended from the old Hindu village system, under which they were remunerated by small assignments of land. The village watchmen were placed under the *dārogas* by the Regulation of 1793 already referred to. Between 1813 and 1816 provision was made for the maintenance of *chaukīdārs* at all Magistrates' head-quarters, who were paid monthly stipends by the residents of the towns in question; and a somewhat similar arrangement was soon afterwards introduced generally in all Districts where the indigenous system mentioned above did not exist. The powers and duties of the *chaukīdārs* were laid down in detail in Regulation XX of 1817. In 1838 their number was estimated to be 190,000. In 1870 a new law was enacted—VI (B.C.) of 1870—detailing their duties and providing for the levy of their pay through

the agency of local committees, called *panchāyats*, who were empowered not only to fix their pay at any rate between Rs. 3 and Rs. 6 a month, but also to appoint and, if necessary, dismiss them. The latter powers are now exercised by the District Magistrate; the necessary funds are still usually collected by the *panchāyat*, but the Magistrate may, in certain cases, appoint a *tahsīldār* for the purpose. The *chaukīdārs* are required to attend the police station at regular intervals, usually once a week, in order to report the births and deaths occurring in their beats, and to give information regarding the movements of bad characters and other matters. They are also required to give immediate notice of the occurrence of all heinous offences, and are empowered to arrest and take to the police station persons caught red-handed. In order to provide a link between the regular police and the village *chaukīdārs*, *daffadārs* have been appointed over groups of from ten to twenty *chaukīdārs*. The rural police are not legally subordinate to the regular police, to whom they merely report. They are under the control of the District Magistrate, who can, however, delegate his powers to the District Superintendent of police. In some Districts he delegates all his powers, keeping in his own hands only the general power of control; in some Districts he delegates his powers in the head-quarters subdivision only; in others, again, he delegates powers to punish and reward within fixed limits. There are now 153,000 *chaukīdārs*, and the value of their annual emoluments is estimated at about 79 lakhs[1]. Most of them are now under Act VI (B.C.) of 1870, but about 5,000 still hold service-lands in lieu of salary; about 4,500 are under Regulation XX of 1817, and upwards of 9,000, in Chotā Nāgpur, are under a special Act—V (B.C.) of 1887—passed for that part of the Province.

Criminal tribes.

The only criminal tribe having its head-quarters in Bengal that need be noticed is the Magahiyā Doms. These are most numerous in Sāran and Champāran Districts, where an attempt has been made to reclaim them by inducing them to settle down as agriculturists. Settlements have been formed on land given for the purpose by *zamīndārs*, and allowances for the purchase of seeds, &c., have been made to them by Government. Enough has been done to make it possible for them to live honestly if they choose to do so, but there has so far been no very marked improvement in their habits; their loca-

[1] The number of *chaukīdārs* in Bengal as now constituted is 106,500, and the value of their annual emoluments is estimated at nearly 49 lakhs.

tion in settlements, however, gives the local authorities some hold over them.

Reformatory schools. Reformatory schools are maintained at Alipore and Hazāribāgh; these contained 383 boys at the end of March, 1904, the total cost to Government during the year being Rs. 58,000. Boys of the agricultural classes are sent to the Hazāribāgh school, where cultivation and gardening are specially taught, while boys belonging to the industrial castes are sent to the Alipore school, where they are instructed in various industries. The kindergarten system of teaching has been introduced at Alipore; drill and gymnastics are included in the training at both schools, and games are played. A number of boys are provided with work outside the schools under a system of licences, and the Educational department endeavours to follow up the history of each boy for three years after his release.

Work of the police. On an average, 134,000 cases were reported yearly by the police between 1896 and 1901, of which 67,000 were dealt with by the criminal courts, 56,700 or 84·6 per cent. ending in conviction and the remainder in discharge or acquittal. During the same period 32,000 cases were on the average dealt with yearly by the Calcutta police, the nature of whose work is very different; of these, 29,800 were referred to the courts, and all but 950 ended in conviction.

Anthropometry and finger-prints. The plan of identifying criminals by means of head measurements was introduced by Sir Edward Henry, when Inspector-General of Police; but he subsequently replaced it by the system of finger-prints, which is now in vogue everywhere. The record of finger-impressions, which in 1897 consisted of only 8,000 slips, had risen to nearly 56,000 in 1901, and to nearly 80,000 in 1903, when 1,555 men were thus identified, compared with 345 in 1898, the first complete year of working.

Reserves, military, and railway police. A special reserve of from twenty to fifty constables, armed with converted Sniders (now being replaced by converted Martini-Henry carbines), under a sub-inspector, is maintained at the head-quarters of each District, and four military police companies of 100 each, armed with Martini-Henry rifles, are stationed at Dacca*, Bhāgalpur, Dumkā, and Hooghly. In accordance with the recommendation of the Police Commission, these reserves are to be strengthened and placed in charge of European inspectors, and all members of the force are to pass periodically through them for courses of training. A separate railway police was formed in 1867, and now comprises 2 Assistant Inspectors-General, 17 inspectors, 44 sub-

inspectors, 154 head constables, and 731 native and 14 European constables.

The jails of Bengal are divided into three classes—Central, District, and subsidiary. The Central jails, which are in charge of whole-time officers, are intended for the confinement of persons sentenced to long terms of imprisonment. Including the Presidency Jail in Calcutta, where European convicts are incarcerated, there are now eight[1] Central jails; in 1881 there were nine, and in 1891 seven. At the head-quarters of Districts where there is no Central jail, there is a District jail, which, except at Darjeeling, is supervised by the Civil Surgeon. Prisoners sentenced to imprisonment for more than two years are transferred to a Central jail. There are subsidiary jails at all subdivisional head-quarters for the detention of under-trial prisoners, and of those sentenced to imprisonment for not more than fourteen days. It is proposed to detain only under-trial prisoners in these small jails as far as is practicable. Detailed statistics are given in Table XIII at the end of this article (p. 183). Jails.

The modern administration of the Jail department, which is controlled by an Inspector-General, dates from the period between 1877 and 1881, when many improvements were effected—the superintending staff was strengthened, and the pay and prospects of the subordinates were improved; new jails were built, discipline was made more strict, and greater care began to be taken to see that the prisoners were properly housed, clothed, and fed, and that medical aid was promptly rendered to those in need of it. The result of these measures has been most satisfactory. In 1881 and for twenty years previously, the mortality amongst prisoners had exceeded 61 per 1,000; in the next decade it fell to 45; between 1892 and 1901 it was only 32, and in 1903 only 23·7 per 1,000. The chief jail diseases are dysentery, pneumonia, malarial fevers, and cholera. Dysentery is becoming less common; in 1903, in spite of a greatly increased jail population, the deaths from this cause numbered only 91, compared with 475 twenty years earlier. Cholera has almost ceased to be a jail disease; in 1903 there were only 24 cases and 15 deaths. Fewer deaths than formerly are now ascribed to 'fever,' but this is due in part to better diagnosis; and the same cause may also perhaps account for the reported increase in tuberculosis, which, like pneumonia, often results from overcrowding.

In the District jails the prisoners are employed on simple

[1] There are six Central jails in Bengal as now constituted.

forms of labour, such as brick-pounding, flour-grinding, and oil-pressing; but in the Central jails special industries are carried on to meet the requirements of various Government departments. In the Presidency Jail much of the Government printing is done; at Buxar tents and cotton cloth are made; at Midnapore the prisoners work in cane, coir, and aloe fibre, and so on. The earnings aggregated nearly 6 lakhs in 1903, compared with $5\frac{1}{4}$ lakhs in 1881, but the provision of hard labour for the prisoners is considered of more importance than the amount earned. The expenditure is steadily rising, largely owing to the increased cost of food-stuffs.

Education. Indigenous schools. Bengal has always contained a large number of ordinary village schools or *pāthsālas*. These were used mainly by the higher Hindu castes and gave instruction in reading, writing, and arithmetic, but the education they afforded was very elementary: it consisted largely in learning by rote, and especially in committing elaborate arithmetical tables to memory. Brāhman *pandits* taught Sanskrit to their disciples, who were mostly Brāhmans and Baidyas, and there were also some indigenous medical schools. Muhammadan children attended *maktabs*, or elementary schools where boys learnt to recite the Korān, and *madrasas*, or more advanced schools teaching Persian and Arabic. Under the Company's Charter Act of 1813 a lakh of rupees a year was allotted for expenditure on education, and in 1823 a Committee of Public Instruction was appointed. This Committee sought to encourage the learning and literature respected by the people and to foster high education as it was then understood, but no attempt was made to arrange for any general system of education.

Committee of Public Instruction.

Under Lord William Bentinck the cause of English education, which had hitherto been fostered mainly by the independent efforts of missionaries, rapidly gained ground; and in 1835 it was decided, largely through the influence of Macaulay, to impart instruction in the higher schools through the medium of English. The abolition in 1837 of Persian as the court language gave a great stimulus to the study of English, and about the same time the education grant was raised to $4\frac{1}{2}$ lakhs; a system of scholarships was created for English schools, and Bengal was divided into nine educational circles, in most of which there was a central college, while every District was provided with a school to teach both English and the vernacular.

The Council of Education. The Committee of Public Instruction was replaced in 1842 by a Council of Education. A system of examinations and

scholarships was devised, and steps were taken to obtain employment in the public service for the most successful students. Model vernacular schools were established, and arrangements were made for the periodical examination of indigenous schools. Books were lent to these schools, and money rewards, amounting to about Rs. 5,000 a year, were given to deserving teachers and pupils.

Creation of the Bengal Educational department.

The celebrated educational Dispatch, issued by the Court of Directors in 1854, gave a great impulse to education in India, and led in Bengal to the appointment in 1855 of a Director of Public Instruction and of a certain number of inspectors and sub-inspectors of schools, and also, shortly afterwards, to the constitution of a University Committee. This was followed by the establishment of a regular department of Public Instruction. From that date the progress of education in Bengal has been rapid and sustained. Systematic inspection was introduced, the scholarship system was developed, and grants-in-aid were given to private schools and colleges. All grades of education were fostered, and a complete system of examinations was organized. Encouragement was afforded to elementary education by means of small scholarships offered to the best pupils of vernacular schools. The most advanced boys from the District schools competed every year for higher scholarships tenable in colleges. Grants-in-aid were given to 79 English and 140 vernacular schools, and the School Book and Vernacular Literature Societies were established, both of which published useful works.

Colleges.

In Bengal proper the colleges established prior to 1857 were fourteen in number, the earliest and most important being the Calcutta Madrasa, which was founded by Warren Hastings in 1781. In 1817 the Hindu College, which was subsequently merged in the Presidency College, was founded for the teaching of the English language and European science. A college was established by the Baptist missionaries at Serampore in 1818. The Sanskrit College dates from 1824, and in 1830 Dr. Duff founded the General Assembly's Institution. The schism in the Scottish Church in 1843 led to the establishment of the Free Church Institution. The Hooghly College was opened in 1836, and the Patna College in 1855–6. Besides these, there were Government Colleges at Dacca*, Berhampore, Midnapore, and Krishnagar. The Doveton, La Martinière, and St. Paul's Colleges in Calcutta were private foundations, and the Bhawānīpur College was maintained by the London Missionary Society.

Present organization of the Educational department.

The Educational department is divided into four sections: namely, the Imperial service, the Provincial service, the Subordinate service, and the Lower Subordinate service. The Imperial service[1] consists of 31 officers appointed in England, comprising the Director of Public Instruction, Assam, the Assistant Director of Public Instruction, Bengal, 6 principals of colleges, 15 professors and 5 inspectors of schools, and 3 to fill vacancies. The post of Director of Public Instruction is not included within the Indian Educational service. The Provincial service, which is filled mainly by recruitment in India, consists of 109 officers: namely, 6 divisional inspectors of schools, 7 assistant inspectors, 7 principals of colleges, 56 professors of colleges, 23 head masters of collegiate and training schools, and 10 other officers. The Subordinate service, which includes all deputy-inspectors of schools, head masters of District schools, some assistant masters in District schools, foremen at technical institutions, &c., comprises 464 appointments. The minimum pay is Rs. 50 a month. The Lower Subordinate service consists of 1,112 persons.

Direction and inspection.

The Director is the chief controlling officer of the department. Below him the chief executive officers are the divisional inspectors of schools, one for each Commissioner's Division, who, with the help of assistant inspectors, supervise all schools in their Divisions. Usually each District is in charge of a deputy-inspector, who is assisted by a sub-inspector in each subdivision and *gurū* instructors in each *thāna*. The District boards have control over education more or less elementary in rural tracts, but in some cases they have delegated their duties in regard to primary education to local boards. In the few Districts where these boards do not exist, the local control is vested in special committees.

Instruction.

The department[2] maintains 11 Arts colleges, including one

[1] Owing to the recent transfer of officers to the new Province of Eastern Bengal and Assam, the strength of the Indian Educational service in Bengal has been reduced to 27 officers. It includes 2 divisional inspectors of schools, the inspector of European schools, the inspectress of schools, the Assistant Director of Public Instruction, 5 principals and 14 professors of colleges, and 3 officers to fill vacancies. After the transfer of 27 officers to the new Province, there remain 81 officers in the Bengal Provincial service: namely, 4 divisional inspectors and 5 assistant inspectors of schools, 5 principals and 42 professors of colleges, 16 head masters of collegiate and training schools, and 9 other officers. Altogether 101 officers have been transferred to the new Province from the Subordinate Educational service, which now comprises 346 officers exclusive of the sub-inspectors of schools.

[2] In the new Provincial area the department maintains 8 Arts colleges,

for girls; 9 professional colleges, of which 7 are law colleges attached to and forming part of the same number of Arts colleges; 77 secondary schools, including 2 high and one middle English school for girls; 123 primary schools, including one for girls; and also 145 schools for special instruction, including a Government college and 4 Government vernacular schools for medicine.

The teaching institutions fall into three main groups: namely, University education, or the advanced instruction given to candidates for degrees; and secondary education, or the instruction given to boys and girls who have passed beyond the third or elementary stage, known as primary education. Classification of institutions.

The rise of the Calcutta University dates from 1856, when rules were formulated for conducting examinations and granting degrees in Arts, Law, Medicine, and Engineering, and the Presidency College was placed upon an improved footing. The Act of Incorporation of the Calcutta University was passed in January, 1857. In 1859 the intermediate examination in Arts was established, the degree of 'Licentiate' was created in the Faculties of Law and Engineering, and that of Doctor in the Faculty of Law. The degree of M.A. was conferred for the first time in 1862, and that of Bachelor of Science in 1901–2. The Calcutta University.

In 1904 the Indian Universities Act was passed, which gives greater control in academical matters to the teachers who are connected with colleges affiliated to the University; it also aims at improving the standard of education in colleges, imposes more stringent conditions on affiliation, and provides for periodical inspection by experts.

The Viceroy is Chancellor of the University. The Fellows are appointed by him, but some of them are selected on the suggestion of graduates and of the Faculties of the Senate. The Vice-Chancellor is appointed by the Governor-General-in-Council from the Fellows. The University is not a teaching University in the ordinary sense of the term; its principal functions are to affiliate colleges, to recognize high schools, to prescribe courses of study for colleges and the upper classes of high schools, to hold examinations, and to grant certificates and diplomas to the successful candidates. The Chancellor, Vice-Chancellor, and Fellows constitute the Senate, which Its government.

one of which is for girls; 6 professional colleges; 59 secondary schools, including one high and 2 middle English schools for girls; 86 primary schools, one of which is for girls; and 103 special schools, including one Government college and 3 Government vernacular schools for medicine.

meets once a year, and also when convened by the Vice-Chancellor on the requisition of any six members. It is divided into the Faculties of Arts, Law, Medicine, and Engineering, to which a Faculty of Science has now been added. These Faculties are appointed by the Senate at its annual meeting, and each elects its own president; every member of the Senate is a member of at least one Faculty. The executive government of the University is vested in a Syndicate, consisting of the Vice-Chancellor and ten of the Fellows, who are elected for one year by the several Faculties. Boards of Studies consisting of from six to sixteen members are appointed for the principal departments of studies; their duties are to recommend textbooks and the courses of study in their respective departments, and to advise the Syndicate regarding the appointment of examiners and upon any other matter that may be referred to them. The expenditure of the University in 1903-4 was 2·29 lakhs, which was entirely met from the fees paid by candidates at the examinations.

Arts colleges. In 1857, 10 Arts colleges were affiliated to the Calcutta University. The number had risen to 34 in 1891, to 44 in 1901, and to 46 in 1903-4. These are divided into two grades: the first-grade teach up to the B.A. standard of the University, while in the second-grade colleges the course prescribed for the intermediate examination in Arts, or a course of a similar standard, is taught. An undergraduate of the University may appear for the B.A. or B.Sc. examination, provided he has prosecuted a regular course of study in any affiliated institution for not less than four academical years, and if he passes, he may appear at the M.A. examination whenever he pleases. Of the 46 affiliated colleges, 11 are maintained by Government and one from municipal funds; 6 are aided and 28 unaided. The Presidency, Patna, and St. Xavier's Colleges were affiliated to the B.Sc. standard of the Calcutta University in 1901. The Indian Association for the Cultivation of Science has also been affiliated to this standard. In addition to those just mentioned, the Dacca* College, the General Assembly's Institution, the Duff College, the Metropolitan Institution, the Ripon and the Bangabāsī Colleges are the most important Arts colleges. The total expenditure incurred on Arts and Professional colleges in 1903-4 was 12·73 lakhs, of which 5·87 lakhs was derived from Provincial revenues and 4·92 lakhs from fees.

Professional colleges. A Law department was attached to the Presidency College and affiliated to the University in 1857. This example was

soon followed, and the number of colleges teaching law had grown to 12 in 1890–1, and to 17 in 1900–1, the number falling to 16 in 1903–4. The opening of law classes in other Calcutta institutions greatly reduced the attendance and income of those at the Presidency College, which were therefore abolished. The Calcutta Medical College was founded in 1835 by Lord William Bentinck, and affiliated to the Calcutta University in 1857. For the students of this college University standards of various descriptions have been prescribed. Institutions for medical education are now controlled by the Inspector-General of Civil Hospitals. The Civil Engineering College was opened in November, 1856, as a department of the Presidency College, but in 1880 it was replaced by the Government Engineering College at Sibpur (*see* HOWRAH), which was affiliated to the University; the instruction was made more practical, and classes were opened for civil engineers, mechanical engineers, overseers, and mechanical apprentices. A few appointments under Government are guaranteed to the students of this college.

Hostels.

Students not living with their parents or guardians are now required to reside at duly authorized hostels. The number of such hostels in 1903–4 was 411, with 14,045 inmates; and they were maintained at a cost of 10·95 lakhs, of which Rs. 51,000 was paid from public sources.

University results.

The results of the most important examinations at the Calcutta University in each of the years 1880–1, 1890–1, 1900–1, and 1903–4 are shown below:—

Passes* in	1880–1.	1890–1.	1900–1.	1903–4.
Matriculation	1,184	1,816	2,812	2,394
First or Intermediate in Arts	320	693	1,039	1,198
Ordinary Bachelor of Arts degree	126	231	329	295
Higher and special degrees	30†	57‡	91§	74‖

* Including private candidates.
† In M.A. only. Besides, there were 35 passes in B.L., 17 in L.M.S., one in Honours in Medicine, 9 in M.B., 10 in L.E., and 3 in B.E.
‡ In M.A. only. Besides, there were 128 passes in B.L., 13 in 2nd L.M.S., one in Honours in Medicine, 3 in 2nd M.B., one in M.D., 3 in L.E., and 2 in B.E.
§ In M.A. only. Besides, there were 160 passes in B.L., 64 in 2nd L.M.S., 3 in 2nd M.B., and 10 in B.E.
‖ In M.A. only. Besides, there were 136 passes in B.L., 59 in 2nd L.M.S., 3 in 2nd M.B., 12 in B.E., and 5 in B.Sc.

Secondary schools for boys.

Schools which have classes where students are prepared for the University Matriculation examination are classed as 'high schools,' and all other secondary schools are 'middle schools.' The latter, again, are divided into two classes, according as English is or is not included in the curriculum. This language is the medium of instruction in the first four classes of high

schools, and it is taught as a second language in all but the lowest classes of both high and middle English schools. There is a tendency to convert middle vernacular into middle English schools, and to raise the latter to the rank of high schools; the middle English now outnumber the middle vernacular schools, and also contain considerably more pupils. The attendance at schools of this class is improving, and is now about the same as in high schools. The total number of secondary schools for boys in 1903-4 was 2,465, of which 74, or 3 per cent., were directly managed by Government, and 186, or 7·5 per cent., by District or municipal boards; 1,584, or 64·3 per cent., were aided from public funds, including Native State revenues, while the rest were unaided. The number attending these schools was 252,000, or 4·4 per cent. of the boys of school-going age.

Primary education for boys.

Primary schools are intended chiefly for the masses. They are divided into two grades—upper and lower. In the latter the elements of reading, writing, simple arithmetic, and agriculture are taught. It is now proposed to establish in purely agricultural areas rural schools with shorter and simpler courses suited to the needs of the agricultural population. In the upper primary schools the curriculum is a little more advanced, though considerably below the final course prescribed for middle schools; it includes the elements of history, geography, geometry, and science, in addition to the study of vernacular literature. A few primary schools are managed by the Educational department or by local bodies; but the great majority are merely aided by the grant of monthly or quarterly stipends, supplemented by grants made on the result of local inspection and depending upon the number of pupils under instruction, the stage of instruction reached, the qualifications of the *gurū*, the nature and condition of the school-house, and other factors which go to make up a successful school. This system of payment was until recently the usual one, except in backward localities, but it has been held not to work satisfactorily. It has now been decided to pay all the *gurūs* by fixed stipends, and an additional grant of 5 lakhs has been set aside by the Local Government for this purpose. In 1903-4, 122 primary schools were maintained wholly by the department, 18 by District or municipal boards, and 304 by Native States; nearly 82 per cent. of the total number were aided in the manner described above, and a few were aided by Native States; the remainder were unaided. The average yearly pay of the teachers of upper primary schools was about Rs. 136 in

1900–1, and rose to Rs. 148 in 1903–4; that of the teachers of lower primary schools rose in the same period from Rs. 56 to Rs. 63. In recent years no systematic attempt has been made to train *gurūs*, but training schools for them are now being started in each subdivision.

Female education.

The promotion of female education in Bengal is beset with difficulties. There is no general demand for it as a means of livelihood; the *parda* system and early marriage stand in the way, and, until recently, the curriculum was not suitable for girls. New standards, containing more congenial subjects such as literature, history, domestic economy, and needlework, have now been prescribed for schools in and about Calcutta, and are being gradually introduced in the Districts.

Girls' schools in advanced tracts are aided from Provincial revenues, and model primary schools for them have been started in every District. Training classes, aided from Provincial revenues, have been recently opened in connexion with mission and other schools, and orthodox Hindu and Muhammadan female teachers have been appointed to further the spread of *zanāna* education. *Zanāna* teaching is also carried on by Christian missionaries and by several Hindu and Brahmo associations, especially in Calcutta.

The number of Arts colleges and schools for girls rose from 831 in 1881 to 2,362 in 1891, to 2,973 in 1901, and to 5,005 in 1904. In the same years the numbers of girls in colleges were respectively 5, 40, 72, and 98; in secondary schools, 6,000, 5,500, 5,600, and 5,600; and in primary schools, 29,000, 75,000, 91,000, and 147,000. The percentage of girls under instruction to the number of school-going age was 0·87 in 1880–1, 1·61 in 1890–1, 1·8 in 1900–1, and 2·8 in 1903–4. The Bethune College, La Martinière, and Loretto House are the principal centres of female education. In all twelve high schools for girls were aided by Government or by District or municipal boards in 1903–4.

District boards spent Rs. 25,000 on girls' schools in 1890–1, Rs. 38,000 in 1900–1, and Rs. 80,000 in 1903–4. The boards have also created special scholarships for female pupils in primary schools. To encourage their education up to higher standards at home, Government has recently ruled that girls may draw scholarship stipends without attending schools, if they can prove that they have attained a higher standard by home study. There are an inspectress and assistant inspectress of girls' schools, whose duty it is to look after female education.

The establishment of normal schools for training teachers

Special schools.

other than *gurūs* dates from 1855, but it was not until 1874 that they became at all numerous. There were then 56 in all. There are 10 medical schools as compared with 5 in 1884; of these 4 are Government institutions, and the rest are unaided. Among other special schools may be mentioned 4 engineering and survey and 4 art schools. There were 27 industrial schools with 806 pupils in 1903–4, against 4 with 144 pupils twenty years previously. *Madrasas* (for the teaching of Arabic and Persian) have increased during the same period from 7 to 83. Various other educational institutions, such as recognized *tols* (for the teaching of Sanskrit), reformatory schools, music schools, and schools for the deaf and dumb, number in all 590. An agricultural department attached to the Sibpur Civil Engineering College was attended in 1903–4 by 25 students, 11 in the first year class and 14 in the second year; it has not been very successful and will shortly be removed to Pūsa.

European and Eurasian education.

Fixed grants were formerly given to certain European schools in Bengal, but since 1882 the annual grants have been based partly on the returns of attendance, and partly on the results of examinations. The primary and secondary schools, taken together, numbered 55 with 5,000 pupils in 1883, and 69 with 7,000 pupils in 1891; while 80 schools with 8,000 pupils were returned in 1903–4. The number of pupils who passed the various code examinations was 65 in 1883, 247 in 1891, and 543 in 1903–4; the numbers who passed the entrance examination of the Calcutta University in the same three years were 38, 95, and 16 respectively. A few boys of the better class are provided with appointments in the Police, Opium, and Accounts departments. Some have obtained situations in railways, mercantile offices, tea-gardens, and jute factories, and some have continued their education in the Medical College or at the Sibpur Engineering College. The girls have become teachers, typewriters, or shop assistants, and a few of them have entered the medical profession.

Muhammadan education.

Although some improvement is observable of late years, Muhammadans are still backward in respect of education. In proportion to the relative populations, Hindus gained twelve times as many University degrees in 1901 as Muhammadans, and they sent thrice the number of pupils to secondary schools. In the same year only 9 per cent. of Muhammadans of school-going age attended primary schools, as compared with 11·9 per cent. among Hindus. The comparison, however, cannot fairly be made solely on a numerical basis; the great majority of the Muhammadans of Bengal are converts from the lower strata of

the population, and it is doubtful if they are worse educated than the Kochs and Chandāls and cognate Hindu castes from whose ranks they have sprung. Moreover, their instruction in the ordinary schools is retarded by the long course of religious training which a devout Musalmān must undergo before he may turn his thoughts to the acquisition of secular knowledge. In order to foster Muhammadan education, steps have been taken to improve the *maktabs* and Korān schools by offering subsidies to teachers who adopt the departmental standards, by replacing teachers of the old type by better qualified men, and by increasing the number of Muhammadans on the inspecting staff. Muhammadan pupils in high schools are allowed additional free studentships and enjoy the benefits of the Mohsin fund, under which they obtain part remission of fees in schools and colleges. Several special scholarships have also been created, with a view to enable Muhammadans to receive collegiate education.

The great home of the aboriginal races is in the hills and uplands of the Chotā Nāgpur plateau and the adjacent country. Special attention has been given to the requirements of these rude tribes by Government and the District boards, and excellent service has been rendered by missionaries, who have established many schools in their midst. The Dublin University Mission has started a college at Hazāribāgh for the promotion of their higher education, and a Government high school at Rāngāmāti is also intended chiefly for aborigines. In the Santāl Parganas a special inspector has been appointed to visit Santāl schools. In all 8,000 Christian and 34,000 non-Christian aborigines attended school in 1903–4. Education of aboriginal races.

The expenditure on the various classes of educational institutions in 1900–1 and in 1903–4, with the sources from which the funds were derived, is shown in Table XIV at the end of this article (p. 184). Educational finance.

The number of children attending schools represented 10·2 per cent. of the total population of school-going age in 1881, 13·5 per cent. in 1891, 14·2 per cent. in 1901, and 16·5 per cent. in 1903–4. The number of persons returned as literate at the Census of 1901 was 4,259,000, or 5·5 per cent. of the total population; for males the percentage was 10·5 and for females 0·5. During the last decade the number of literate males shows an increase of 15 per cent., while that of literate females has risen by 63 per cent. In every 10,000 persons of each sex, 89 males and 6 females can read and write English. The Burdwān, Presidency, and Orissa Divisions are the most General educational results.

advanced in the matter of education. Among religions, Christians take the lead, followed, in the order mentioned, by Buddhists, Hindus, Musalmāns, and Animists. Of the Hindu indigenous castes, the Baidyas and Kāyasths have the largest proportion of literate persons, and the depressed race-castes of Bihār the smallest.

Fees.

The fees in Government colleges vary from Rs. 12 a month in the Presidency College to Rs. 2 in the Calcutta Madrasa and the Sanskrit College; those in aided colleges range from Rs. 5 to Rs. 3, and those in unaided colleges from Rs. 5 to Rs. 2–8[1]. In Government high schools the fees range from R. 1 to Rs. 5; in aided high schools from 8 annas to Rs. 2, and in unaided high schools from 4 annas to Rs. 2. In Government middle schools the fees vary from 2 annas to R. 1, in aided middle schools from 2 to 8 annas, and in unaided middle schools from 1 to 8 annas. In primary schools the fees are from 1 to 4 annas.

General educational statistics.

The principal statistics of colleges, schools, and scholars for each of the years 1890–1, 1900–1, and 1903–4 are shown in Table XV at the end of this article (p. 185).

Vernacular newspapers.

Leaving out of account the *Samāchār Darpan*, which was started long ago at Serampore by Baptist missionaries, and the *Samāchār Chandrikā*, a Calcutta publication, it is doubtful whether even half a dozen vernacular newspapers were in existence in Bengal before 1860. In 1863, when a weekly official report on native papers was instituted, the total number was 20, of which one was published in English and Urdū, 3 in Persian, one in Hindī, and 15 in Bengali. No less than 7 of these papers were entirely devoted to religious and social topics. The numbers of these newspapers stood at 40 in 1873, at 50 in 1881, at 71 in 1891, at 55 in 1901, and at 70 (4 only being Muhammadan) in 1903–4. In that year there were also 22 native-owned English newspapers and 4 Anglo-vernacular papers. Owing to the spread of vernacular education and the growth of a reading public, the native newspaper press has now, in its own way, become a power in the country. A great change has gradually taken place in its character, tone, and literary style. In 1863 and for some years afterwards the papers devoted small space to the discussion of political questions or large administrative measures, and items of news and speculations on religious and social subjects constituted the major portion of their contents. Politics received very meagre treatment; the writers offered their opinions with

[1] The Rāj College at Burdwān charges no fees.

diffidence, and their tone was always respectful; their literary style was stiff and sanskritized. The principal characteristics of such papers at the present time are the increasing prominence given to political and administrative questions, a reckless, exaggerated, and occasionally disloyal tone, and a colloquial, ungrammatical, and anglicized style. With the spread of English education, the papers published in English by Bengalis are rapidly growing in importance.

The vernacular papers have, as a rule, a very limited circulation, and only about 15 are of much importance. The *Hitabādī* and *Basumatī* occupy the first place in respect of circulation; the latter paper has, however, less influence than the *Bangabāsī*, the organ of the orthodox Hindus. The *Sanjībanī* is the mouthpiece of the Brahmos, and the *Habl-ul-matīn* and *Mihir-o-Sudhākar* represent the Muhammadans.

Books and publications.

The number of publications received in the Bengal Library during 1903-4 was 2,905, of which 2,089 were books and 816 were periodicals. These publications deal with literary, social, political, religious, and economic subjects; but, with the exception of a few important scientific publications, they display little original research.

Medical. Hospitals.

Most of the chief medical institutions of the Province are in Calcutta. Among the Mofussil institutions the largest and most important is the Mitford Hospital at Dacca*, which was built in 1858 at a cost of over Rs. 76,000; it has accommodation for 170 patients. The Bankipore Hospital, for which a new building is being provided, has now 124 beds; the Cuttack General Hospital has 82 beds; the Burdwān Hospital, 76; the Darbhangā Hospital, 65; the Midnapore Hospital, 77; and the Gayā Pilgrim Hospital, 84 beds. The Lady Dufferin Zanāna Hospitals at Bettiah and Darbhangā, maintained, respectively, by the Bettiah and the Darbhangā Rājs, and the Lady Elgin Zanāna Hospital at Gayā are also doing excellent work.

Dispensaries.

There are dispensaries at all District and subdivisional headquarters and wherever there are municipalities, and also at many places in the interior; all the former and many of the latter of these have accommodation for in-patients. They are for the most part maintained by the municipality or District board concerned, with the aid of grants from Government and public subscriptions. The total number of these dispensaries in 1903 was 614, compared with only 237 twenty years earlier. For further details Table XVI at the end of this article may be referred to (p. 186).

M 2

Lunatic asylums.

There are 5 lunatic asylums in the Province, situated at Bhawānīpur in Calcutta, Dacca*, Patna, Cuttack, and Berhampore. Of these, the first is reserved for Europeans and Eurasians, and the others for natives; the latter, with the exception of that at Dacca*, will soon be replaced by a single central asylum. The alleged causes of insanity among Europeans are chiefly the abuse of alcohol among males and heredity in the case of females; *gānja*-smoking and heredity are the chief causes assigned for lunacy among natives.

Leper asylums.

There are 8 asylums for lepers, at Gobrā, Deogarh, Purūlia, Rānīganj, Asansol, Bānkurā, Bhāgalpur, and Lohārdagā. The six last mentioned have been established by the Society for Missions to Lepers in India and the East, and the Gobrā asylum is a Government institution managed by a body appointed by Government. The total number of inmates in October, 1904, was 1,179, of whom 622 were in the Purūlia asylum. The Lepers Act (III of 1898), which came into force in Bengal in 1901, provides for the segregation and medical treatment of pauper lepers and for the control of lepers following certain trades connected with the bodily requirements of human beings.

Vaccination.

In former times the practice of inoculation was widespread. The operation was preceded by a ceremony performed in honour of Sītala, the goddess of small-pox: a twig of a mango-tree was dipped in a pitcher of water, some *mantras* or charms were recited by a Brāhman, and offerings of milk and sweetmeats were made. The patient was then inoculated with the crust of small-pox on the right forearm, if a male, or on the left forearm, if a female. He was bathed on the second day, to bring on fever, and was then confined for twenty-one days, after which a mixture of turmeric, *nīm* leaves, and coco-nut oil was rubbed over the body. Inoculation is still practised clandestinely in parts of Orissa and Bihār, but it is becoming more and more rare, and vaccination is rapidly taking its place. Vaccinators are licensed by District Magistrates, and their work is supervised by the Civil Surgeons and the Superintendents of Vaccination. Where the older method survives, the vaccinators are usually recruited from the ranks of the former inoculators, but in the Province as a whole barely a quarter of the staff belongs to this class.

The chief statistics of hospitals, lunatic asylums, and of vaccination are shown in Table XVI at the end of this article (p. 186).

In order to bring quinine within the reach of all, the system

of selling it through the agency of the Postal department, in pice-packets, each containing 5 (now 7) grains, was inaugurated in 1892. The drug is manufactured at the Government factory in Darjeeling, and is made up into packets at the Alipore jail, whence it is supplied to all post offices in Bengal. The postmasters receive a small commission on the sales effected by them. The system has met with considerable success; in 1903 nearly 3,000,000 packets of this valuable febrifuge were sold, compared with one-eighth of a million in 1893. Sale of quinine.

The difficulties in the way of promoting village sanitation in India are enormous, the chief being the ignorance and prejudices of the people and the absence of an educated and trustworthy local agency. Something has been done to improve the water-supply by providing tanks and wells, and disinfecting them either periodically or when epidemic disease breaks out; and grave sanitary evils, which affect the public health and so constitute a public nuisance, are dealt with under Chapter XIV of the Indian Penal Code. The Local Self-Government Act—III (B.C.) of 1885—contains provisions for enforcing sanitation, but they have not yet been applied. A Sanitary Board was constituted in 1889, but it is merely a consultative body, and at present attention is directed mainly to the education of public opinion in municipalities. It is hoped that in time, with the diffusion of education, a knowledge of sanitary requirements will gradually spread to rural areas; but until it does so very few improvements are feasible. Village sanitation.

The basis of all surveys in Bengal is the Grand Trigonometrical Survey which was carried out early in the nineteenth century. A general revenue survey commenced in 1835, and by 1872 the operations had been extended to the whole Province except Midnapore District (which was surveyed in 1872–8), the Sundarbans, Hill Tippera*, the Chittagong Hill Tracts*, the Santāl Parganas, Angul, and the Chotā Nāgpur Division. Most of these tracts were topographically surveyed during the same period on scales varying from $\frac{1}{4}$ inch to 1 inch to the mile. The revenue survey was preceded by a demarcation of villages and estates, which was known as the *thāk* survey, and was generally made on the scale of 4 inches to the mile. The boundary of each village and estate was separately surveyed; the maps showed also important topographical details, but were on too small a scale to indicate field boundaries. From these surveys District maps have been prepared on $\frac{1}{4}$ and 1 inch scales. Surveys.

The *diāra* survey.

Between 1863 and 1869 a *diāra*[1] survey was made along the banks of the Ganges from the point where it enters Bengal down to its junction with the Brahmaputra, and all changes due to alluvion and diluvion which had taken place since the revenue survey were mapped. In 1874–6 this survey was continued down to the sea. About the same time a number of surveys were made in different parts of the Province, either in order to resettle the revenue of Government estates, as in the case of Chittagong* and Khurdā, or to assess *ghātwāli*[2] lands in Chotā Nāgpur. These surveys were generally on a scale of 16 inches to the mile and showed field boundaries; but they were with some exceptions partial and unprofessional, and were lacking in accuracy and finish. In 1889 it became necessary to survey the sub-province of Orissa and the District of Chittagong*, in order to resettle the revenue of time-expired estates, and professional detachments of the Survey department of the Government of India were organized for this purpose. In 1890 it was decided to prepare a survey and record-of-rights in the North Bihār Districts, and similar methods were adopted. The total area dealt with by parties of the Survey of the Government of India between 1889 and the end of September, 1904, has been 32,915 square miles, as shown below:—

District.	Area in square miles.	District.	Area in square miles.	District.	Area in square miles.
Chittagong*	2,003	Cuttack	2,269	Purnea	2,408
Muzaffarpur	3,046	Balasore	1,733	Backergunge*	2,126
Champāran	3,280	Purī	1,134	Rānchī	1,344
Sāran	2,510	Tippera*	554	Other District areas under 200 square miles	853
Gayā	546	Palāmau	294		
Darbhangā	3,307	Bhāgalpur	3,849		
Monghyr	1,449	Darjeeling	210	Total	32,915

These surveys have been made on a scale of 16 inches to the mile (larger scales have sometimes been employed for crowded village sites), and the maps show the boundaries of each field as well as all topographical features. In addition to the area shown above, similar operations have been carried out in the Santāl Parganas, Singhbhūm, Noākhāli*, and elsewhere, by parties working under the supervision of revenue officers, the field-to-field measurements in this case being sometimes preceded by a professional traverse survey. A large number of

[1] *Diāra* is an alluvial flat or island.

[2] Lands held, in lieu of pay, for police services. Disputes had arisen as to what lands were so held, and as to the services to be rendered.

petty estates have also been surveyed at the request of the proprietors. Taking all these surveys together, cadastral maps of about 36,405 square miles, or nearly a quarter of the area of British territory in the Province, have been prepared since 1889.

Provincial department.

In 1892 an officer of the Survey of India was appointed, with the title of Director of Bengal Surveys, to administer the Bengal Survey directly under the Bengal Government. His post was abolished in 1895, and the appointment of Superintendent of Provincial Surveys created in its stead.

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TABLE I. Temperature and Rainfall of Bengal

(*a*) Temperature

Station.	Height of Observatory above sea-level in feet.	Average temperature (in degrees Fahrenheit) for twenty-five years ending with 1901 in							
		January.		May.		July.		November.	
		Mean.	Diurnal range.	Mean.	Diurnal range.	Mean.	Diurnal range.	Mean.	Diurnal range.
Calcutta (Alipore)	21	66·3	21·7	85·9	17·0	83·3	9·8	73·1	17·2
Chittagong* †	87	66·9	23·1	82·1	13·5	81·2	9·2	74·5	17·4
Cuttack	80	70·7	21·1	90·7	21·4	84·4	11·3	75·8	19·1
Jalpaiguri* ‡	284	61·4	21·6	80·1	16·3	82·6	11·8	70·7	21·4
Patna	183	61·5	22·0	88·9	22·7	85·1	10·7	71·4	21·2
Hazāribāgh §	2,007	61·8	21·9	87·2	23·7	79·4	11·1	67·9	19·5
Darjeeling (Hill station)	7,376	40·1	11·0	57·5	11·8	62·0	8·7	48·3	12·4

NOTE.—The diurnal range is the average difference between maximum and minimum temperatures of each day.

† These figures are for twenty-four years. ‡ These figures are for eighteen years. § These figures are for twenty years.

(*b*) Rainfall

Station.	Average rainfall (in inches) for twenty-five years ending with 1901 in												Total of year.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Calcutta (Alipore)†	0·33	1·02	1·09	1·54	5·62	10·95	12·34	12·72	10·75	3·80	0·71	0·30	61·17
Chittagong*	0·28	1·05	2·52	3·78	9·57	21·85	20·25	17·07	11·44	6·20	1·50	0·73	96·24
Cuttack	0·24	0·58	1·17	1·03	4·20	10·06	11·30	12·98	10·06	5·29	1·63	0·24	58·78
Jalpaiguri*	0·48	0·44	1·36	3·28	12·60	24·20	31·23	25·45	21·62	4·16	0·20	0·09	125·11
Patna	0·78	0·64	0·39	0·27	2·09	7·04	12·36	12·03	6·69	3·13	0·19	0·14	46·65
Hazāribāgh	0·69	0·90	0·76	0·46	2·31	8·65	13·58	12·72	8·89	3·00	0·28	0·28	52·52
Darjeeling (Hill station)	0·82	0·95	1·75	4·25	8·98	23·44	33·56	26·04	18·35	4·30	0·25	0·24	122·93

† These figures are for twenty-four years.

TABLE II. Distribution of Population of Bengal, as now constituted, according to Census of 1901

Divisions and States.	Area in square miles.	Number of		Total Population.			Urban Population.			Persons per square mile in rural areas.
		Towns.	Villages.	Males.	Females.	Total.	Males.	Females.	Total.	
Burdwān Division	13,949	27	24,869	4,116,952	4,123,124	8,240,076	312,636	236,083	548,719	591
Presidency Division	17,502	46	20,496	4,703,862	4,289,166	8,993,028	905,229	557,495	1,462,724	514
Patna Division	23,748	35	34,169	7,468,314	8,046,673	15,514,987	393,143	401,494	794,637	653
Bhāgalpur Division *	19,776	14	18,670	4,026,945	4,064,460	8,091,405	120,725	108,277	229,002	409
Orissa Division †	13,743	7	15,409	2,429,508	2,552,634	4,982,142	93,175	87,147	180,322	363
[*Sambalpur*	3,824	1	1,984	313,782	325,210	638,992	6,531	6,339	12,870	167]
Chotā Nāgpur Division	27,101	13	23,876	2,409,266	2,491,163	4,900,429	61,901	59,177	121,078	181
Total, British Territory	115,819	142	137,489	25,154,847	25,567,220	50,722,067	1,886,809	1,449,673	3,336,482	438
Cooch Behār	1,307	4	1,192	301,382	265,592	566,974	9,130	4,930	14,060	434
Tributary States, Orissa ‡	28,046	9	19,022	1,583,992	1,589,403	3,173,395	25,167	21,486	46,653	113
" Chotā Nāgpur §	602	...	1,079	69,600	71,479	141,079	...	...	...	234
Sikkim ‖	2,818	...	125	30,795	28,219	59,014	...	...	...	21
Total, Native States	32,773	13	21,418	1,985,769	1,954,693	3,940,462	34,297	26,416	60,713	120
GRAND TOTAL	148,592	155	158,907	27,140,616	27,521,913	54,662,529	1,921,106	1,476,089	3,397,195	368

* The District of Darjeeling, which was included in the Rājshāhi Division until October 16, 1905, has been attached to the Bhāgalpur Division, while Mālda, which was formerly included in the latter Division, has been transferred to the Province of Eastern Bengal and Assam.

† The District of Sambalpur, which formerly was part of the Central Provinces, has been attached to the Orissa Division since October 16, 1905.

‡ As explained in p. 1, five States were transferred from the Central Provinces on October 16, 1905. At the same time the States of Gāngpur and Bonai, which before formed part of the group of States known as the Chotā Nāgpur States, were transferred to the Orissa Tributary States.

§ Owing to the transfer of five States to the Central Provinces and of two others to the Orissa Tributary States, the Chotā Nāgpur States now include only the States of Kharsāwān and Saraikelā.

‖ In 1906 Sikkim was placed under the direct control of the Government of India.

TABLE II A. Distribution of Population in Bengal, 1901

Administrative Divisions and Districts.	Area in square miles.	Number of towns.	Number of villages.	Total Population. Males.	Total Population. Females.	Total Population. Total.	Urban Population. Males.	Urban Population. Females.	Urban Population. Total.	Persons per square mile in rural areas.
Burdwān	2,689	6	3,662	764,742	767,733	1,532,475	47,308	39,420	86,728	570
Bīrbhūm	1,752	1	3,317	444,689	457,591	902,280	4,703	3,989	8,692	515
Bankurā	2,621	3	5,592	549,484	566,927	1,116,411	26,086	27,189	53,275	426
Midnapore	5,186	7	8,464	1,390,233	1,398,881	2,789,114	46,457	43,419	89,876	538
Hooghly	1,191	8	2,383	528,279	521,003	1,049,282	76,795	57,097	133,892	881
Howrah	510	2	1,451	439,525	410,989	850,514	111,287	64,969	176,256	1,668
Total, Burdwān Division	13,949	27	24,869	4,116,952	4,123,124	8,240,076	312,636	236,083	548,719	591
Twenty-four Parganas	4,844	25	5,082	1,092,916	985,443	2,078,359	232,004	166,126	398,130	429
Calcutta	32	1	...	562,596	285,200	847,796	562,596	285,200	847,796	26,494
Nadiā	2,793	9	3,411	827,509	839,982	1,667,491	46,386	48,969	95,355	597
Murshidābād	2,143	5	3,668	653,346	679,838	1,333,184	39,123	36,785	75,908	622
Jessore	2,925	3	4,894	914,025	899,130	1,813,155	11,711	9,588	21,299	620
Khulnā	4,765	3	3,441	653,470	599,573	1,253,043	13,409	10,827	24,236	263
Total, Presidency Division	17,502	46	20,496	4,703,862	4,289,166	8,993,028	905,229	557,495	1,462,724	514
Rājshāhi*	2,593	2	6,344	741,690	720,717	1,462,407	16,160	14,083	30,243	564
Dinājpur*	3,946	1	7,841	823,972	743,108	1,567,080	8,067	5,363	13,430	397
Jalpaigurī*	2,962	2	766	422,877	364,503	787,380	6,513	3,776	10,289	266
Darjeeling	1,164	2	569	133,005	116,112	249,117	12,659	8,734	21,393	214
Rangpur*	3,493	6	5,212	1,125,109	1,029,072	2,154,181	18,892	10,592	29,484	617
Bogra*	1,359	2	3,865	437,349	417,184	854,533	6,319	4,879	11,198	629
Pābna*	1,839	2	3,720	709,396	711,065	1,420,461	22,209	19,329	41,538	772
Total, Rājshāhi Division*	17,356	17	28,317	4,393,398	4,101,761	8,495,159	90,819	66,756	157,575	489
Dacca*	2,782	2	7,263	1,312,417	1,337,105	2,649,522	67,331	47,683	115,014	952
Mymensingh*	6,332	8	9,770	2,014,805	1,900,263	3,915,068	59,733	45,664	105,397	618
Farīdpur*	2,281	2	5,283	970,164	967,482	1,937,646	16,238	12,874	29,112	849
Backergunge*	4,542	5	4,612	1,175,903	1,115,849	2,291,752	30,996	14,578	45,574	505
Total, Dacca Division*	15,937	17	26,928	5,473,289	5,320,699	10,793,988	174,298	120,799	295,097	677
Tippera*	2,499	3	5,361	1,085,989	1,032,002	2,117,991	28,656	19,790	48,446	848
Noākhāli*	1,644	1	2,633	568,777	572,951	1,141,728	4,303	2,217	6,520	694
Chittagong*	2,492	2	1,450	641,392	711,858	1,353,250	15,540	10,445	25,985	543
Chittagong Hill Tracts*	5,138	...	296	68,238	56,524	124,762	...	...	...	24
[illegible]	[illegible]	8	[illegible]	1,011,271	1,048,662	2,059,933	[illegible]	[illegible]	114,425	437

Gaya	4,712	8	7,871	[illegible]	[illegible]	[illegible]	[illegible]	62,751	118,106	449
Shāhābād	4,373	6	5,515	936,544	1,026,152	1,962,696	55,355	41,985	81,120	901
Sāran	2,674	4	5,855	1,095,288	1,314,221	2,409,509	39,135	18,085	38,426	507
Champāran	3,531	2	2,623	885,607	904,856	1,790,463	20,341	43,322	88,055	908
Muzaffarpur	3,035	4	4,120	1,318,547	1,436,243	2,754,790	44,733	51,210	103,392	870
Darbhangā	3,348	4	3,233	1,416,474	1,496,137	2,912,611	52,182			
Total, Patna Division	23,748	35	34,169	7,468,314	8,046,673	15,514,987	393,143	401,494	794,637	653
Monghyr	3,922	4	2,516	1,011,580	1,057,224	2,068,804	35,633	35,803	71,436	527
Bhāgalpur	4,226	2	3,063	1,027,535	1,061,418	2,088,953	42,618	38,880	81,498	494
Purnea	4,994	3	3,355	958,452	916,342	1,874,794	17,498	13,941	31,439	375
Mālda*	1,899	3	3,555	437,639	446,391	884,030	17,654	16,772	34,426	466
Santāl Parganas	5,470	3	9,167	896,373	913,364	1,809,737	12,317	10,919	23,236	331
Total, Bhāgalpur Division	20,511	15	21,656	4,331,579	4,394,739	8,726,318	125,720	116,315	242,035	425
Cuttack	3,654	3	5,517	995,409	1,067,349	2,062,758	41,077	37,643	78,720	565
Balasore	2,085	2	3,358	517,543	553,654	1,071,197	19,635	19,763	39,398	514
Angul	1,681	...	1,449	95,935	95,976	191,911	...	...	...	114
Purī	2,499	1	3,101	506,839	510,445	1,017,284	25,932	23,402	49,334	407
Total, Orissa Division	9,919	6	13,425	2,115,726	2,227,424	4,343,150	86,644	80,808	167,452	438
Hazāribāgh	7,021	3	8,848	570,122	607,839	1,177,961	17,922	17,909	35,831	168
Rānchī	7,128	4	3,173	577,180	610,745	1,187,925	20,680	20,128	40,808	167
Palāmau	4,914	2	3,184	306,203	313,397	619,600	5,107	4,340	9,447	126
Mānbhūm	4,147	3	5,521	653,336	648,028	1,301,364	13,866	12,473	26,339	314
Singhbhūm	3,891	1	3,150	302,425	311,154	613,579	4,326	4,327	8,653	158
Total, Chotā Nāgpur Division	27,101	13	23,876	2,409,266	2,491,163	4,900,429	61,901	59,177	121,078	181
Total, British Territory	157,796	182	203,476	37,376,782	37,368,084	74,744,866	2,198,889	1,671,379	3,870,268	474
Cooch Behār	1,307	4	1,192	301,382	265,592	566,974	9,130	4,930	14,060	434
Tributary States, Orissa	14,387	4	11,805	969,973	977,829	1,947,802	11,632	10,910	22,542	135
Tributary States, Chotā Nāgpur	16,014	...	4,603	506,759	494,670	1,001,429	...	...	...	63
Hill Tippera*	4,086	1	1,463	92,495	80,830	173,325	5,847	3,666	9,513	42
Sikkim	2,818	...	125	30,795	28,219	59,014	...	...	...	21
Total, Native States	38,612	9	19,188	1,901,404	1,847,140	3,748,544	26,609	19,506	46,115	97
GRAND TOTAL	196,408	191	222,664	39,278,186	39,215,224	78,493,410	2,225,498	1,690,885	3,916,383	400

NOTE.—The figures for area and density differ from those shown in the *Census Report* in some cases in which more exact figures have become available on account of the completion of recent survey operations and other causes. The area of the Sundarbans is estimated at 6,526 square miles, of which 2,941, 2,688, and 897 lie respectively in the Twenty-four Parganas, Khulnā, and Backergunge Districts. If this tract be excluded, the density of these Districts is respectively 1,093, 603, and 623 persons to the square mile, and of the whole Province (British territory) 494 to the square mile.

TABLE III

Statistics of Canals in Bengal

Canals.	Area irrigated (in square miles).	Receipts, in thousands of rupees.		Working expenses, in thousands of rupees.	Net revenue, in thousands of rupees.	Percentage of net revenue on capital outlay.
		Irrigation.	Navigation.			
	Average for ten years ending 1889-90.					
Son . .	447	6,70	63	6,15	+ 1,45	+ 0·57
Orissa . .	172	1,34	84	3,90	− 1,55	− 0·69
Midnapore .	128	1,10	1,28	2,26	+ 26	+ 0·31
	Average for ten years ending 1899-1900.					
Son . .	645	8,69	72	6,59	+ 3,10	+ 1·15
Orissa . .	256	2,51	1,53	4,89	− 63	− 0·24
Midnapore .	119	1,25	1,23	2,41	+ 28	+ 0·33
	Year 1900-1.					
Son . .	675	10,39	37	6,24	+ 4,86	+ 1·82
Orissa . .	319	2,88	90	4,52	− 44	− 0·17
Midnapore .	125	1,19	98	1,72	+ 61	+ 0·72
	Year 1903-4.					
Son . .	791	12,51	23	5,38	+ 7,86	+ 2·94
Orissa . .	328	3,26	70	3,83	+ 45	+ 0·17
Midnapore .	145	1,49	47	1,50	+ 70	+ 0·82

TABLE IV

PRICES OF STAPLES IN BENGAL

(In seers per rupee)

Selected staples.	Selected centres.	Average price in seers per rupee for the decade ending			Average for the year 1903-4.
		1880.	1890.	1900.	
Rice (common).	Burdwān	18·23	21·09	14·59	11·63
	Calcutta	13·66	14·60	10·82	9·41
	Rangpur*	19·57	17·63	12·02	13·10
	Dacca*	16·91	18·43	13·23	14·71
	Patna	18·64	18·60	15·73	14·97
	Cuttack	22·56	21·21	15·34	17·06
Wheat	Burdwān	14·85	14·62	12·69	13·25
	Calcutta	13·74	14·17	11·26	11·98
	Rangpur*	16·23	15·62	10·93	12·23
	Dacca*	13·95	14·84	11·23	17·00
	Patna	19·32	19·47	15·27	16·49
	Cuttack	15·17	15·37	10·97	14·04
Barley	Calcutta	20·81	21·13	15·75	15·51
	Dinājpur*	18·15	18·59	15·33	...
	Patna	27·77	28·94	21·46	25·06
Jowār	Calcutta	16·69	19·44	16·02	16·25
	Patna	28·78	22·95	21·76	24·80
Maruā	Patna	...	25·81	23·70	26·33
	Muzaffarpur	24·62	29·28	19·93	27·75
	Hazāribāgh	29·54	30·61	21·37	25·70
Maize	Calcutta	18·48	22·15	16·50	16·68
	Patna	27·41	29·33	22·82	26·00
Gram	Burdwān	18·25	20·78	15·92	16·42
	Calcutta	16·31	19·24	14·08	14·69
	Rangpur*	13·26	15·11	13·54	14·62
	Dacca*	16·95	17·26	13·28	15·54
	Patna	24·98	26·67	19·56	21·00
	Cuttack	21·67	19·66	15·96	18·30
Salt	Burdwān	9·26	12·02	11·27	13·33
	Calcutta	9·93	12·08	10·66	11·17
	Rangpur*	7·54	10·62	9·29	11·31
	Dacca*	8·74	11·23	9·74	11·19
	Patna	8·08	10·60	10·87	11·25
	Cuttack	10·51	12·34	10·68	14·50
Piece-goods.		Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Grey shirtings, Calcutta, 8¼ lbs.	. . .	4-12-0	4-6-6	5-0-3	...

NOTE.—A seer is 2·057 lb.

TABLE V

Trade of Bengal with other Provinces and States in India

(In thousands of rupees)

	By sea (exclusive of Government stores and treasure).			By rail and river.		
	1890-1.	1900-1.	1903-4.	1890-1.	1900-1.	1903-4.
Imports (Foreign and Indian goods)	3,32,37	4,60,oc	4,75,33	13,46,91	21,85,86	26,36,88
Cotton, raw	49,47	5,09	7,11	1,11,65	79,39	1,58,87
" twist and yarn	47,36	59,68	44,19	2,05	40,68	35,37
" piece-goods	35,24	57,67	54,33	9,29	24,03	31,69
" other manufactures	1,60	2,02	2,35	...	70	7,27
Grain and pulse	2,68	38,67	5,79	92,68	1,38,40	3,94,69
Hides and skins	4,31	4,84	80	60,16	1,40,30	1,05,06
Metals and manufactures of metals	5,63	21,11	13,08	40,47	52,38	85,50
Oils	9,30	74,14	1,71,38	1,60	11,15	10,07
Oilseeds	43,52	23,12	16,52	1,43,12	2,52,46	2,88,53
Opium	...	...	...	2,32,94	3,12,36	3,38,78
Provisions	3,03	5,82	6,04	60,24	91,52	1,12,75
Salt	18,12	17,58	10,55	2,61	22,24	19,08
Spices	15,50	30,19	29,73	1,33	10,29	46,47
Sugar	5,96	19,37	13,06	4,82	64,03	67,64
Tea	2	8	38	3,43,60	4,66,38	5,53,36
Wood	44,10	46,63	41,82	...	20,55	22,97
Woollen goods	68	81	29	5,70	89,10	31,83
All other articles	45,85	53,18	57,41	2,34,65	3,69,90	3,26,95
Treasure	11,10	7,46	4,27	Not registered.	3,38,66	4,21,82
Exports (Foreign and Indian goods)	5,36,76	7,16,30	6,44,68	11,93,30	19,52,91	18,05,29
Coal and coke	9,97	1,43,69	1,13,24	25,05	88,75	1,39,48
Cotton goods	64,92	36,00	42,09	5,77,21	4,51,73	5,96,38
Grain and pulse	1,66,08	1,93,30	1,18,19	46,43	4,97,68	81,80
Jute and manufactures of jute	1,25,59	1,25,18	1,36,59	35,65	90,20	1,41,00
Metals and manufactures of metals	11,98	12,51	18,73	1,55,69	1,58,32	1,77,26
Oils	1,78	6,60	15,77	31,10	64,46	66,85
Provisions	14,86	23,27	31,22	35,15	66 45	41,96
Spices	30,41	42,99	44,47	35,82	54,83	55,62
Sugar	2,22	2,33	1,76	52,98	88,32	1,11,40
Tobacco	11,69	27,81	25,04	27,00	42,99	43,09
All other articles	97,26	1,02,62	97,58	1,71,22	3,49,18	3,50,45
Treasure	1,02,43	68,03	59,20	Not registered.	1,35,89	1,52,61

TABLE VI

Foreign Maritime Trade of Bengal, exclusive of Government Stores and Treasure

(In thousands of rupees)

	1890-1.	1900-1.	1903-4.
Imports	26,08,03	31,86,91	33,64,54
Animals, living	11,42	20,83	20,19
Apparel	42,30	44,61	47,83
Cotton twist and yarn	1,02,56	73,52	49,69
" piece-goods	13,39,10	14,55,90	14,43,56
" other manufactures	16,09	61,07	66,84
Drugs, medicines, and narcotics	23,55	44,73	47,54
Glass and glass-ware	21,54	29,14	31,34
Liquors	48,02	48,92	49,71
Machinery and mill-work	81,32	1,01,81	1,41,70
Metals and manufactures of metals, including hardware and cutlery	2,68,58	3,96,72	4,98,35
Oils	1,48,24	1,79,92	1,51,96
Provisions	27,62	35,35	34,31
Railway plant and rolling-stock	27,93	58,57	39,18
Salt	63,62	45,88	54,45
Spices	26,56	42,47	27,74
Sugar	69,01	1,59,99	1,83,90
Woollen goods	75,10	86,78	71,53
All other articles	2,15,47	3,00,70	4,04,72
Treasure	3,91,84	5,74,93	9,47,69
Exports (Indian and Foreign goods)	37,25,93	55,14,44	59,96,10
Coal and coke	2,62	59,22	38,12
Cotton and cotton manufactures	1,12,65	77,44	1,27,59
Grain and pulse	4,11,46	4,68,65	6,50,04
Hides and skins	2,07,05	5,55,62	4,82,99
Indigo	2,05,11	1,56,90	60,13
Jute and manufactures of jute	10,03,33	18,63,59	21,07,56
Lac (except dye)	78,03	1,04,64	2,68,99
Oils	32,38	30,01	31,86
Oilseeds	3,49,17	4,11,92	4,49,49
Opium	5,97,99	6,12,24	7,04,08
Saltpetre	37,87	33,27	40,11
Silk and silk manufactures	65,51	57,75	53,20
Tea	5,04,11	9,07,50	7,88,17
All other articles	1,18,65	1,75,69	1,93,77
Treasure	16,90	63,74	40,02

TABLE VII

Foreign Land Trade of Bengal

(In thousands of rupees)

	1890-1.	1900-1.	1903-4.
Imports	1,20,13	1,69,13	1,60,62
Animals	15,18	29,10	21,28
Fruits, vegetables, and nuts	4,31	3,23	3,00
Grain and pulse	55,46	78,77	84,52
Hides and skins	3,49	5,43	5,64
Oilseeds	12,78	19,33	14,10
Provisions	6,82	8,29	5,76
All other articles	22,09	24,98	26,32
Treasure	9,90	7,55	5,47
Exports (Indian and Foreign goods)	99,85	1,31,75	97,20
Cotton goods	35,21	46,19	38,77
Metals and manufactures of metals	7,68	11,03	13,01
Provisions	8,72	9,12	4,55
Salt	4,44	10,24	7,19
Spices	8,95	15,54	4,86
Sugar	3,54	5,38	3,55
Tobacco	3,41	7,54	2,26
All other articles	27,90	26,71	23,01
Treasure	2,13	64,65	3,73

TABLE VIII. Statistics of Railways in Bengal

Railway.		Total length open.	Capital expended, in thousands of rupees.	Passengers conveyed, in thousands.	Goods and minerals carried, in thousands of tons.	Gross working expenses, in thousands of rupees.	Net revenue, in thousands of rupees.	Percentage of net revenue on capital.	Percentage of net earnings to gross receipts.	Average cost of construction per mile, in thousands of rupees.
		Miles.								
Eastern Bengal State	1891	777	11,24,91	8,924	1,069	33,66	65,32	5·81	51·50	1,51
,, ,, ,,	1901	968	14,62,52	13,272	1,781	85,08	83,08	5·88	50·05	1,51
,, ,, ,,	1903	1,012	15,43,22	14,331	2,654	95,66	92,05	5·90	52·79	1,52
Bengal Central	1891	125	99,45	1,537	103	4,84	3,27	3·30	40·38	1,04
,, ,,	1901	125	1,29,54	1,885	155	7,62	6,43	4·96	45·75	1,04
,, ,,	1903	125	1,31,89	1,989	206	10,01	5,08	3·85	36·54	1,05
Deogarh	1891	5	2,83	218	Not shown.	16	15	5·46	49·50	60
,,	1901	5	2,85	329	2	30	19	6·53	38·60	60
,,	1903	5	3,01	262	15	30	11	3·65	26·83	60
Bengal-Duārs (opened 1893)	1891	...	16	...	...	...	...	...	...	80
,, ,, ,,	1901	111	88,71	316	73	2,42	2,45	2·77	50·35	80
,, ,, ,,	1903	116	1,06,25	442	121	3,28	3,30	3·10	55·18	91
Tārakeswar-Magrā, Limited (opened 1894)	1901	31	9,72	419	9	58	20	2·04	23·92	31
,, ,,	1903	31	10,16	427	17	60	25	2·50	29·41	32
Rānāghāt-Krishnagar, Limited (opened 1899)	1901	20	7,51	226	46	54	15	2·02	21·97	37
,, ,,	1903	20	7,44	247	7	52	34	4·57	39·53	37
Darjeeling-Himālayan	1891	51	30,60	55	25	3,53	2,58	8·44	42·10	68
,, ,,	1901	51	34,78	74	31	4,74	3,14	9·02	39·80	68
,, ,,	1903	57	36,13	109	41	5,44	4,17	11·54	44·03	70

TABLE VIII. STATISTICS OF RAILWAYS IN BENGAL (*continued*)

Railway.	Total length open.	Capital expended, in thousands of rupees.	Passengers conveyed, in thousands.	Goods and minerals carried, in thousands of tons.	Gross working expenses, in thousands of rupees.	Net revenue, in thousands of rupees.	Percentage of net revenue on capital.	Percentage of net earnings to gross receipts.	Average cost of construction per mile, in thousands of rupees.
	Miles.								
Howrah-Amtā, Limited (opened 1897) . . 1901	29	11,97	762	Nil	1,46	1,14	9·53	43·78	42
" " 1903	29	12,88	808	17	1,39	1,38	10·71	49·82	44
Howrah-Sheakhāla, Ltd. (opened 1897) . . 1901	20	6,10	302	Nil	55	23	3·80	30·65	31
" " 1903	20	6,15	343	7	52	35	5·69	40·23	30
Cooch Behār State (opened 1893) . . . 1891	...	15	...	...	...	...	...	...	41
" " 1901	33·60	13,95	*	*	...	75	5·35	58·52	41
" " 1903	33·60	14,91	†	†	†	†	†	†	†
Tārakeswar . . . 1891	22·23	17,29	1,126	20	1,42	1,63	9·45	53·57	81
" . . . 1901	22·23	17,92	‡	‡	‡	1,58	8·81	47·77	81
" . . . 1903	22·23	17,94	§	§	§	§	§	§	§
South Bihār (opened 1899) . . . 1901	79	1,23,67	‖	‖	‖	‖	2·49	59·98	1,57
" " 1903	79	1,20,02	§	§	§	§	§	§	§
Calcutta Port Commissioners' . . 1891	6·22	50,55	...	Nil	1,47	1,62	3·20	52·60	12,75
" " 1901	7·65	97,55	Nil	750	3,19	2,72	2·27	41·10	12,75
" " 1903	8·50	¶	¶	¶	¶	¶	¶	¶	¶
Bakhtiyārpur-Bihār . 1903	18·50	7,48	117	7	20	15	2·00	42·85	40

* Amalgamated with E. B. S. R. † Amalgamated with E. B. S. R. Separate information not available. ‡ Amalgamated with E. I. R.
§ Amalgamated with E. I. R. Separate information not available. ‖ Information not furnished. ¶ Separate information not available.

TABLE IX

PRINCIPAL SOURCES OF PROVINCIAL REVENUE, BENGAL

(In thousands of rupees)

Heads of revenue.	Average for ten years ending March 31, 1890.		Average for ten years ending March 31, 1900.		Year ending March 31, 1901.		Year ending March 31, 1904.	
	Total amount raised (Imperial, Provincial, and Local).	Amount credited to Provincial revenues.	Total amount raised (Imperial, Provincial, and Local).	Amount credited to Provincial revenues.	Total amount raised (Imperial, Provincial, and Local).	Amount credited to Provincial revenues.	Total amount raised (Imperial, Provincial, and Local).	Amount credited to Provincial revenues.
Land revenue	3,80,73	1,12,45*	3,92,87	91,51	4,08,24	86,87	4,10,03	2,10,43
Salt	2,08,63	1,17	2,45,10	1,22†	2,54,35	...	2,18,01	...
Stamps	1,29,81	87,09	1,65,34	1,24,00	1,84,35	1,38,26	1,98,36	1,48,77
Excise	1,00,13	50,97	1,24,82	41,24	1,46,48	73,24	1,62,96	81,48
Provincial rates	77,50	38,82	89,72	45,24	96,67	47,43	1,02,99	50,40
Assessed taxes	24,72	10,41	46,52	23,26	52,76	26,38	50,36	24,73
Forests	6,51	2,66	9,45	4,72	12,33	6,17	10,66	5,33
Registration	10,60	6,32	14,15	7,07	15,32	7,66	16,66	8,33
State railways	84,96	63,68	2,05,49	72,13†	2,68,91	...	3,26,57	...
Other sources ‡	8,12,81	68,36§	7,51,03	63,64	9,34,82	95,60	10,22,20	1,04,73
Total	18,36,40	4,41,93	20,44,49	4,74,03	23,74,23	4,81,61	25,18,80	6,34,20

* Average for eight years, as a portion of receipts was made Provincial in 1882–3.
† Average for seven years ending 1896–7, during which the Miscellaneous Salt receipts and a portion of state railways receipts were Provincial.
‡ Includes all heads of receipts other than those mentioned above.
§ Includes Imperial allotments. Adjustments between Imperial and Provincial are included under Land Revenue.

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TABLE X

Principal Heads of Provincial Expenditure, Bengal

(In thousands of rupees)

	Average for ten years ending March 31, 1890.	Average for ten years ending March 31, 1900.	Year ending March 31, 1901.	Year ending March 31, 1904.
Opening balance	31,10	31,52	38,18	55,29
Charges in respect of collections (principally Land Revenue and Forests)	49,98	61,55	66,26	69,03
Salaries and expenses of Civil Departments—				
(*a*) General administration	15,52	16,99	17,37	19,05
(*b*) Law and Justice	94,06	1,10,22	1,19,64	1,23,82
(*c*) Police	46,37	59,86	60,65	65,72
(*d*) Education	28,93	26,55	28,06	34,42
(*e*) Medical	13,74	18,33	21,47	21,48
(*f*) Other heads	13,20	13,55	15,01	17,84
Pensions and miscellaneous civil charges	24,46	33,00	37,27	41,70
Famine relief	32	4,94	2,26	...
Irrigation	49,17	52,99	49,45	52,37
Public works	42,87	33,67	39,81	76,05
Other charges and adjustments	64,73	42,24	19,93	25,49
Total expenditure	4,43,35	4,73,89	4,77,18	5,46,97
Closing balance	29,68	31,66	42,61	1,42,52

TABLE XI

INCOME AND EXPENDITURE OF DISTRICT BOARDS*, BENGAL

	Average for ten years ending 1900.	1900-1.	1903-4.
Income from—	Rs.	Rs.	Rs.
Provincial rates	37,05,064	42,35,060	44,78,981
Interest	26,662	47,139	43,696
Pounds	4,52,055	4,73,430	4,93,423
Education	53,889	66,374	89,351
Medical	22,934	34,585	65,312
Scientific, &c.	4,970	10,802	20,584
Stationery and printing	480	661	804
Miscellaneous	1,87,863	1,85,366	1,95,330
Public works †	5,30,267	8,01,714	9,15,070
Ferries	4,09,855	4,86,727	5,07,371
Contributions ‡	6,38,702	6,26,313	10,53,195
Other heads	7,42,760	4,29,996	5,39,771
Total income	67,75,501	73,98,167	84,02,888
Expenditure on—			
General administration	2,84,900	2,80,259	3,11,396
Pounds	24,856	21,829	28,416
Education	11,41,008	12,91,247	18,19,584
Medical	2,00,676	4,59,422	4,09,277
Scientific, &c.	14,644	25,765	48,659
Superannuation pensions and allowances	9,579	20,731	32,025
Stationery and printing	48,003	41,454	40,569
Miscellaneous	52,700	55,585	42,322
Public works §	41,35,444	45,36,741	48,72,292
Contributions ‖	88,394	1,22,048	62,975
Other heads	7,58,932	5,15,989	6,55,673
Total expenditure	67,59,136	73,71,070	83,23,188

* The income and expenditure in 1903-4 of the District boards contained in the present area of Bengal were Rs. 57,13,574 and Rs. 56,20,986 respectively.

† Includes sums collected by Civil officers as fees and rent, &c., and contributions by Government and private individuals for particular works.

‡ Special Government grants.

§ Expenditure on roads, bridges, buildings, &c.

‖ Contributions towards the cost of plague camps, refunds of unspent balances of contributions made for special purposes, and the like.

TABLE XII

Income and Expenditure of Municipalities*, Bengal, including Calcutta

(In thousands of rupees)

	Average for ten years ending 1900.	1900-1.	1903-4.
Income from—			
Tax on houses and lands	25,93	31,03	35,08
Other taxes	39,58	48,00	54,47
Rents	98	1,34	1,44
Loans	18,72	4,34	56,42
Other sources	29,22	28,62	35,53
Total income	1,14,43	1,13,33	1,82,94
Expenditure on—			
Administration and collection of taxes	8,36	8,90	11,59
Public safety	6,67	7,89	8,26
Water-supply and drainage:			
(*a*) Capital	12,62	7,68	17,43
(*b*) Maintenance	6,54	8,82	8,40
Conservancy	19,55	23,38	29,29
Hospitals and dispensaries	3,50	4,91	5,69
Public works	16,97	11,82	25,48
Education	1,40	1,35	1,73
Other heads	37,25	45,43	62,21
Total expenditure	1,12,86	1,20,18	1,70,08

* In 1903-4 the income of the municipalities in Bengal as now constituted was Rs. 1,73,60,503, and the expenditure was Rs. 1,61,34,060.

TABLE XIII

STATISTICS OF JAILS, BENGAL

	1881.	1891.	1901.	1903.	1903, present area.
Number of Central jails	9	7	8	8	6
Number of District jails	37	39	40	40	29
Number of Subsidiary jails (lock-ups) .	82	86	88	89	67
Average daily jail population:—					
(*a*) Male prisoners:					
In Central jails .	7,607	7,753	10,279	9,454	7,689
In District jails .	7,852	6,916	9,378	8,597	5,716
In Sub-jails .	624	824	1,204	1,107	725
(*b*) Female prisoners:					
In Central jails .	294	132	168	117	102
In District jails .	339	267	326	249	217
In Sub-jails .	31	24	39	34	27
Total	16,747	15,916	21,394	*19,558	14,476
Rate of jail mortality per 1,000 . .	68.6	31.4	27.7	23.7	22.4
	Rs.	Rs.	Rs.	Rs.	Rs.
Expenditure on jail maintenance . .	9,10,377	10,82,683	16,25,171	15,87,645	11,12,239
Cost per prisoner .	54	68	76	81	76
Profits on jail manufactures (net) . .	5,25,969	3,64,914	5,84,174	5,38,247	4,59,330
Earnings per prisoner .	34	26	31	32	36

* The decrease is due to the release of 3,003 prisoners on the occasion of the celebration of the Coronation of H.M. the King-Emperor.

TABLE XIV

Statistics of Educational Expenditure, Bengal

Class of institutions.	Expenditure on institutions maintained or aided by public funds (in lakhs of rupees).				
	Provincial revenues.	District and municipal funds.	Fees.	Other sources.	Total.
Arts and professional colleges: 1900–1	4·79	...	4·93	1·65	11·37
1903–4	5·87	...	4·92	1·94	12·73
Training and special schools*: 1900–1	3·30	0·27	0·73	2·02	6·32
1903–4	4·10	0·27	1·21	1·89	7·47
Secondary boys' schools: 1900–1	3·95	2·29	20·57	9·03	35·84
1903–4	4·42	2·42	23·21	7·94	37·99
Primary boys' schools: 1900–1	1·23	6·15	17·73	4·53	29·64
1903–4	1·66	9·63	19·70	4·44	35·43
Girls' schools: 1900–1	1·70	0·47	1·62	2·89	6·68
1903–4	2·07	0·92	1·75	2·69	7·43
Total 1900–1	14·97	9·18	45·58	20·12	89·85
Total 1903–4	18·12	13·24	50·79	18·90	101·05

In 1903–4 the corresponding expenditure (in lakhs of rupees) in Bengal as now constituted was:—

Class of institutions.	Provincial revenues.	District and municipal funds.	Fees.	Other sources.	Total.
Arts and professional colleges . . .	5·61	...	4·17	1·70	11·48
Training and special schools . . .	3·44	0·10	0·73	1·53	5·80
Secondary boys' schools* . . .	2·70	1·64	14·50	4·85	23·69
Primary boys' schools*	1·27	6·67	13·06	3·09	24·09
Girls' schools* . .	0·89	0·51	0·36	1·70	3·46
Total	13·91	8·92	32·82	12·87	68·52

* Excluding figures for European schools.

TABLE XV. COLLEGES, SCHOOLS, AND SCHOLARS, BENGAL

Class of institutions.	1890–1.			1900–1.			1903–4.		
	Number of institutions.	Scholars.		Number of institutions.	Scholars.		Number of institutions.	Scholars.	
		Males.	Females.		Males.	Females.		Males.	Females.
Public.									
Arts colleges	34	5,213	19	44	8,150	49	46	7,927	82
Professional colleges	14	1,472	21	20	2,241	23	19	2,493	16
Secondary schools:—									
Upper (High)	375	77,610	1,117	516	113,731	1,466	580	124,761	1,568
Lower (Middle)	2,104	124,326	4,415	2,012	123,242	4,097	1,950	127,590	4,074
Primary schools: Upper	3,824	125,955	12,244	4,435	172,276	11,326	5,071	211,301	14,218
" " Lower	45,931	914,902	62,561	44,446	989,006	79,364	48,695	1,129,020	132,764
Training schools	32	940	257	27	734	498	155	1,543	691
Other special schools	249	5,775	59	566	13,900	34	722	19,047	170
Private.									
Advanced	2,800	31,853	237	2,375	26,043	221	2,092	25,352	354
Elementary	10,587	92,339	7,628	7,701	85,344	6,583	6,770	81,580	8,323
Total	65,950	1,380,385	88,558	62,142	1,534,667	103,661	66,100	1,730,614	162,260

The statistics of 1903–4 for the present area of Bengal are as follows:—

Class of institutions.	Number of institutions.	Scholars.		Remarks.
		Males.	Females.	
Public.				
Arts colleges	37	6,484	82	
Professional colleges	15	2,269	16	
Secondary schools:—Upper (High)*	381	78,859	412	* Separate figures for 17 High schools, 42 Middle schools, 18 Upper Primary schools, and 3 Lower Primary schools established for Europeans have been excluded.
" " Lower (Middle)*	1,100	72,148	1,001	
Primary schools: Upper*	2,936	121,669	11,481	
" " Lower*	33,253	772,740	83,388	
Training schools	119	1,137	691	
Other special schools	440	10,659	161	
Private.				
Advanced and elementary	5,118	51,754	1,660	
Total	43,399	1,117,719	98,892	

TABLE XVI

Statistics of Hospitals, Lunatic Asylums, and Vaccination, Bengal

	1881.	1891.	1901.	1903.	1903, present area.
Hospitals, &c.*					
Number of civil hospitals and dispensaries	237	283	567	614	375
Average daily number of—					
(*a*) In-patients	2,091	2,652	3,456	3,524	2,970
(*b*) Out-patients	9,395	12,160	25,970	29,227	18,847
Income from—					
(*a*) Government payments . Rs.	3,74,773	3,47,445	8,74,616	8,10,505	7,56,740
(*b*) Local and municipal payments . Rs.	1,93,402	3,65,384	7,09,911	7,84,440	6,04,858
(*c*) Fees, endowments, and other sources Rs.	3,25,684	2,97,358	6,63,872	9,67,968	6,91,726
Expenditure on—					
(*a*) Establishment . Rs.	4,09,803	4,37,662	8,22,629	8,91,289	7,09,513
(*b*) Medicines, diet, buildings, &c. . Rs.	4,02,783	5,20,221	12,50,347	14,30,758	11,93,019
Lunatic Asylums.					
Number of asylums	6	6	6	6	5
Average daily number of—					
(*a*) Criminal lunatics	277	455	517	543	391
(*b*) Other lunatics	616	580	469	510	394
Income from—					
(*a*) Government payments . Rs.	87,479	92,165	1,18,960	1,16,357	91,344
(*b*) Fees and other sources Rs.	28,464	27,985	20,556	20,408	19,236
Expenditure on—					
(*a*) Establishment . Rs.	55,633	43,978	45,769	46,649	38,554
(*b*) Diet, buildings, &c. Rs.	60,310	76,173	93,747	90,116	72,026
	1880-1.	1890-1.	1900-1.	1903-4.	
***Vaccination.*†**					
Population among whom vaccination was carried on	36,892,735	62,782,913	73,843,197	77,624,647	Not ascertainable.
Number of successful operations	1,363,925	1,805,096	2,248,015	2,662,477	
Ratio per 1,000 of population	37	28	30	34	
Total expenditure on vaccination . Rs.	1,11,066	1,82,400	1,88,114	2,03,281	
Cost per successful case Rs.	0-1-3	0-1-7	0-1-4	0-1-2	

* The figures for hospitals, &c., include the institutions in Calcutta.
† The figures for vaccination include those for the States of Orissa and Chota Nagpur in which vaccination is carried on.

MOUNTAINS, LAKES, RIVERS, CANALS, HISTORIC AREAS, ETC.

Himālayas, The.—A system of stupendous mountain ranges, lying along the northern frontiers of the Indian Empire, and containing some of the highest peaks in the world. Literally, the name is equivalent to 'the abode of snow' (from the Sanskrit *hima*, 'frost,' and *ālaya*, 'dwelling-place'). To the early geographers the mountains were known as Imaus or Himaus and Hemodas; and there is reason to believe that these names were applied to the western and eastern parts respectively, the sources of the Ganges being taken as the dividing line. 'Hemodas' represents the Sanskrit *Himāvata* (Prākrit *Hemota*), meaning 'snowy.' The Greeks who accompanied Alexander styled the mountains the Indian Caucasus.

Modern writers have sometimes included in the system the Muztāgh range, and its extension the Karakoram; but it is now generally agreed that the Indus should be considered the north-western limit. From the great peak of Nanga Parbat in Kashmīr, the Himālayas stretch eastward for twenty degrees of longitude, in a curve which has been compared to the blade of a scimitar, the edge facing the plains of India. Barely one-third of this vast range of mountains is known with any degree of accuracy. The Indian Survey department is primarily engaged in supplying administrative needs; and although every effort is made, while fulfilling this duty, to collect information of purely scientific interest, much still remains to be done.

A brief abstract of our knowledge of the Himālayas may be given by shortly describing the political divisions of India which include them. On the extreme north-west, more than half of the State of Kashmīr and Jammu lies in the Himālayas; and this portion has been described in some detail by Drew in *Jammu and Kashmīr Territories*, and by Sir W. Lawrence in *The Valley of Kashmīr*. The next section, appertaining to the Punjab and forming the British District of Kāngra and the group of feudatories known as the Simla Hill States, is better known. East of this lies the Kumaun Division of the United Provinces, attached to which is the Tehrī State. This portion has been surveyed in detail, owing to the requirements of the revenue administration, and is also familiar from the careful

accounts of travellers. For 500 miles the State of Nepāl occupies the mountains, and is to the present day almost a *terra incognita*, owing to the acquiescence by the British Government in the policy of exclusion adopted by its rulers. Our knowledge of the topography of this portion of the Himālayas is limited to the information obtained during the operations of 1816, materials collected by British officials resident at Kātmāndu, notably B. H. Hodgson, and the accounts of native explorers. The eastern border of Nepāl is formed by the State of Sikkim and the Bengal District of Darjeeling, which have been graphically described by Sir Joseph Hooker and more recently by Mr. Douglas Freshfield. A small wedge of Tibetan territory, known as the Chumbi Valley, separates Sikkim from Bhutān, which latter has seldom been visited by Europeans. East of Bhutān the Himālayas are inhabited by savage tribes, with whom no intercourse is possible except in the shape of punitive expeditions following raids on the plains. Thus a stretch of nearly 400 miles in the eastern portion of the range is imperfectly known.

In the western part of the Himālayas, which, as has been shown, has been more completely examined than elsewhere, the system may be divided into three portions. The central or main axis is the highest, which, starting at Nanga Parbat on the north-west, follows the general direction of the range. Though it contains numerous lofty peaks, including Nandā Devī, the highest mountain in British India, it is not a true watershed. North of it lies another range, here forming the boundary between India and Tibet, which shuts off the valley of the Indus, and thus may be described as a real water-parting. From the central axis, and usually from the peaks in it, spurs diverge, with a general south-easterly or south-westerly direction, but actually winding to a considerable extent. These spurs, which may be called the Outer Himālayas, cease with some abruptness at their southern extremities, so that the general elevation is 8,000 or 9,000 feet a few miles from the plains. Separated from the Outer Himālayas by elevated valleys or *dūns* is a lower range known as the Siwāliks, which is well marked between the Beās and the Ganges, reappears to the south of central Kumaun, and is believed to exist in Nepāl. Although the general character of the Himālayas in Nepāl is less accurately known, there is reason to suppose that it approximates to that of the western ranges.

Within the limits of this great mountain chain all varieties of scenery can be obtained, except the placid charm of level

country. Luxuriant vegetation clothes the outer slopes, gradually giving place to more sombre forests. As higher elevations are reached, the very desolation of the landscape affects the imagination even more than the beautiful scenery left behind. It is not surprising that these massive peaks are venerated by the Hindus, and are intimately connected with their religion, as giving rise to some of the most sacred rivers, as well as on account of legendary associations. A recent writer has vividly described the impressions of a traveller through the foreground of a journey to the snows in Sikkim[1]:—

'He sees at one glance the shadowy valleys from which shining mist-columns rise at noon against a luminous sky, the forest ridges, stretching fold behind fold in softly undulating lines—dotted by the white specks which mark the situation of Buddhist monasteries—to the glacier-draped pinnacles and precipices of the snowy range. He passes from the zone of tree-ferns, bamboos, orange-groves, and *dal* forest, through an endless colonnade of tall-stemmed magnolias, oaks, and chestnut trees, fringed with delicate orchids and festooned by long convolvuluses, to the region of gigantic pines, junipers, firs, and larches. Down each ravine sparkles a brimming torrent, making the ferns and flowers nod as it dashes past them. Superb butterflies, black and blue, or flashes of rainbow colours that turn at pleasure into exact imitations of dead leaves, the fairies of this lavish transformation scene of Nature, sail in and out between the sunlight and the gloom. The mountaineer pushes on by a track half buried between the red twisted stems of tree-rhododendrons, hung with long waving lichens, till he emerges at last on open sky and the upper pastures—the Alps of the Himālaya—fields of flowers: of gentians and edelweiss and poppies, which blossom beneath the shining storehouses of snow that encompass the ice-mailed and fluted shoulders of the giants of the range. If there are mountains in the world which combine as many beauties as the Sikkim Himālayas, no traveller has as yet discovered and described them for us.'

The line of perpetual snow varies from 15,000 to 16,000 feet on the southern exposures. In winter, snow generally falls at elevations above 5,000 feet in the west, while falls at 2,500 feet were twice recorded in Kumaun during the last century. Glaciers extend below the region of perpetual snow, descending to 12,000 or 13,000 feet in Kulū and Lāhul, and even lower in Kumaun, while in Sikkim they are about 2,000 feet higher. On the vast store-house thus formed largely depends the prosperity of Northern India, for the great rivers which derive their

[1] D. W. Freshfield in *The Geographical Journal*, vol. xix, p. 453.

water from the Himālayas have a perpetual supply which may diminish in years of drought, but cannot absolutely fail to feed the system of canals drawn from them.

While all five rivers from which the Punjab derives its name rise in the Himālayas, the Sutlej alone has its source beyond the northern range, near the head-waters of the Indus and Tsan-po. In the next section are found the sources of the Jumna, Ganges, and Kālī or Sārdā high up in the central snowy range, while the Kauriāla or Karnāli, known lower down in its course as the Gogra, rises in Tibet, beyond the northern watershed. The chief rivers of Nepāl, the Gandak and Kosi, each with seven main affluents, have their birth in the Himālayas, which here supply a number of smaller streams merging in the larger rivers soon after they reach the plains. Little is known of the upper courses of the northern tributaries of the Brahmaputra in Assam; but it seems probable that the Dihāng, which has been taken as the eastern boundary of the Himālayas, is the channel connecting the Tsan-po and the Brahmaputra.

Passing from east to west the principal peaks are Nanga Parbat (26,182 feet) in Kashmīr; a peak in Spiti (Kāngra District) exceeding 23,000, besides three over 20,000; Nandā Devī (25,661), Trisūl (23,382), Pānch Chūlhī (22,673), and Nandā Kot (22,538) in the United Provinces; Mount Everest (29,002), Devālagiri (26,826), Gosainthān (26,305), and Kinchinjunga (28,146), with several smaller peaks, in Nepāl; and Dongkya (23,190), with a few rising above 20,000, in Sikkim.

The most considerable stretch of level ground is the beautiful Kashmīr Valley, through which flows the Jhelum. In length about 84 miles, it has a breadth varying from 20 to 25 miles. Elsewhere steep ridges and comparatively narrow gorges are the rule, the chief exception being the Valley of Nepāl, which is an undulating plain about 20 miles from north to south, and 12 to 14 miles in width. Near the city of Srīnagar is the Dal Lake, described as one of the most picturesque in the world. Though measuring only 4 miles by 2½, its situation among the mountains, and the natural beauty of its banks, combined with the endeavours of the Mughal emperors to embellish it, unite to form a scene of great attractions. Some miles away is the larger expanse of water known as the Wular Lake, which ordinarily covers 12½ square miles, but in years of flood expands to over 100. A number of smaller lakes, some of considerable beauty, are situated in the outer ranges in Naini Tāl District. In 1903 the Gohnā Lake,

in Garhwāl District, was formed by the subsidence of a steep hill, rising 4,000 feet above the level of a stream which it blocked.

[1] The geological features of the Himālayas can be conveniently grouped into three classes, roughly corresponding to the three main orographical zones: (1) the Tibetan highland zone, (2) the zone of snowy peaks and Outer Himālayas, and (3) the Sub-Himālayas.

In the Tibetan highlands there is a fine display of marine fossiliferous rocks, ranging in age from lower palaeozoic to Tertiary. In the zone of the snowy peaks granites and crystalline schists are displayed, fringed by a mantle of unfossiliferous rocks of old, but generally unknown, age, forming the lower hills or Outer Himālayas, while in the Sub-Himālayas the rocks are practically all of Tertiary age, and are derived from the waste of the highlands to the north.

The disposition of these rocks indicates the existence of a range of some sort since lower palaeozoic times, and shows that the present southern boundary of the marine strata on the northern side of the crystalline axis is not far from the original shore of the ocean in which these strata were laid down. The older unfossiliferous rocks of the Lower Himālayas on the southern side of the main crystalline axis are more nearly in agreement with the rocks which have been preserved without disturbance in the Indian Peninsula; and even remains of the great Gondwāna river-formations which include our valuable deposits of coal are found in the Darjeeling area, involved in the folding movements which in later geological times raised the Himālayas to be the greatest among the mountain ranges of the world. The Himālayas were thus marked out in very early times, but the main folding took place in the Tertiary era. The great outflow of the Deccan trap was followed by a depression of the area to the north and west, the sea in eocene times spreading itself over Rājputāna and the Indus valley, covering the Punjab to the foot of the Outer Himālayas as far east as the Ganges, at the same time invading on the east the area now occupied by Assam. Then followed a rise of the land and consequent retreat of the sea, the fresh-water deposits which covered the eocene marine strata being involved in the movement as fast as they were formed, until the Sub-Himālayan zone river-deposits, no older than the pliocene, became tilted up and even overturned in the great foldings of the strata. This final rise of the Himālayan range in late

[1] By T. H. Holland, Geological Survey of India.

Tertiary times was accompanied by the movements which gave rise to the Arakan Yoma and the Nāgā hills on the east, and the hills of Baluchistān and Afghānistān on the west.

The rise of the Himālayan range may be regarded as a great buckle in the earth's crust, which raised the great Central Asian plateau in late Tertiary times, folding over in the Baikal region on the north against the solid mass of Siberia, and curling over as a great wave on the south against the firmly resisting mass of the Indian Peninsula.

As an index to the magnitude of this movement within the Tertiary era, we find the marine fossil foraminifer, *Nummulites*, which lived in eocene times in the ocean, now at elevations of 20,000 feet above sea-level in Zāskār. With the rise of the Himālayan belt, there occurred a depression at its southern foot, into which the alluvial material brought down from the hills has been dropped by the rivers. In miocene times, when presumably the Himālayas did not possess their present elevation, the rivers deposited fine sands and clays in this area; and as the elevatory process went on, these deposits became tilted up, while the rivers, attaining greater velocity with their increased gradient, brought down coarser material and formed conglomerates in pliocene times. These also became elevated and cut into by their own rivers, which are still working along their old courses, bringing down boulders to be deposited at the foot of the hills and carrying out the finer material farther over the Indo-Gangetic plain.

The series of rocks which have thus been formed by the rivers, and afterwards raised to form the Sub-Himālayas, are known as the Siwālik series. They are divisible into three stages. In the lowest and oldest, distinguished as the Nāhan stage, the rocks are fine sandstones and red clays without any pebbles. In the middle stage, strings of pebbles are found with the sandstones, and these become more abundant towards the top, until we reach the conglomerates of the upper stage. Along the whole length of the Himālayas these Siwālik rocks are cut off from the older rock systems of the higher hills by a great reversed fault, which started in early Siwālik times and developed as the folding movements raised the mountains and involved in its rise the deposits formed along the foot of the range. The Siwālik strata never extended north of this great boundary fault, but the continued rise of the mountains affected these deposits, and raised them up to form the outermost zone of hills.

The upper stage of the Siwālik series is famous on account

of the rich collection of fossil vertebrates which it contains. Among these there are forms related to the miocene mammals of Europe, some of which, like the hippopotamus, are now unknown in India but have relatives in Africa. Many of the mammals now characteristic of India were represented by individuals of much greater size and variety of species in Siwālik times.

The unfossiliferous rocks which form the Outer Himālayas are of unknown age, and may possibly belong in part to the unfossiliferous rocks of the Peninsula, like the Vindhyans and the Cuddapahs. Conspicuous among these rocks are the dolomitic limestones of Jaunsār and Kumaun, the probable equivalents of the similar rocks far away to the east at Buxa in the Duārs. With these a series of purple quartzites and basic lava-flow is often associated. In the Simla area the unfossiliferous rocks have been traced out with considerable detail; and it has been shown that quartzites, like those of Jaunsār and Kumaun, are overlaid by a system of rocks which has been referred to the carbonaceous system on account of the black carbonaceous slates which it includes. The only example known of pre-Tertiary fossiliferous rocks south of the snowy range in the Himālayas occurs in south-west Garhwāl, where there are a few fragmentary remains of mesozoic fossils of marine origin.

The granite rocks, which form the core of the snowy range and in places occur also in the Lower Himālayas, are igneous rocks which may have been intruded at different periods in the history of the range. They are fringed with crystalline schists, in which a progressive metamorphism is shown from the edge of granitic rock outwards, and in the inner zone the granitic material and the pre-existing sedimentary rock have become so intimately mixed that a typical banded gneiss is produced. The resemblance of these gneisses to the well-known gneisses of Archaean age in the Peninsula and in other parts of the world led earlier observers to suppose that the gneissose rocks of the Central Himālayas formed an Archaean core, against which the sediments were subsequently laid down. But as we now know for certain that both granites, such as we have in the Himālayas, and banded gneisses may be much younger, even Tertiary in age, the mere composition and structure give no clue to the age of the crystalline axis. The position of the granitic rock is probably dependent on the development of low-pressure areas during the process of folding, and there is thus a prima facie reason for supposing that much of the igneous material became injected during the Tertiary period. With

the younger intrusions, however, there are probably remains of injections which occurred during the more ancient movements, and there may even be traces of the very ancient Archaean gneisses; for we know that pebbles of gneisses occur in the Cambrian conglomerates of the Tibetan zone, and these imply the existence of gneissose rocks exposed to the atmosphere in neighbouring highlands. The gneissose granites of the Central Himālayas must have consolidated under great pressure, with a thick superincumbent envelope of sedimentary strata; and their exposure to the atmosphere thus implies a long period of effectual erosion by weathering agents, which have cut down the softer sediments more easily and left the more resisting masses of crystalline rocks to form the highest peaks in the range. Excellent illustrations of the relationship of the gneissose granites to the rocks into which they have been intruded are displayed in the Dhaola Dhār in Kulū, in the Chor Peak in Garhwāl, and in the Darjeeling region east of Nepāl.

Beyond the snowy range in the Tibetan zone we have a remarkable display of fossiliferous rocks, which alone would have been enough to make the Himālayas famous in the geological world. The boundary between Tibetan territory and Spiti and Kumaun has been the area most exhaustively studied by the Geological Survey. The rocks exposed in this zone include deposits which range in age from Cambrian to Tertiary. The oldest fossiliferous system, distinguished as the Haimanta ('snow-covered') system, includes some 3,000 feet of the usual sedimentary types, with fragmentary fossils which indicate Cambrian and Silurian affinities. Above this system there are representatives of the Devonian and Carboniferous of Europe, followed by a conglomerate which marks a great stratigraphical break at the beginning of Permian times in Northern India. Above the conglomerate comes one of the most remarkably complete succession of sediments known, ranging from Permian, without a sign of disturbance in the process of sedimentation, throughout the whole Mesozoic epoch to the beginning of Tertiary times. The highly fossiliferous character of some of the formations in this great pile of strata, like the *Productus* shales and the Spiti shales, has made this area classic ground to the palaeontologist.

The Eurasian ocean distinguished by the name 'Thetys,' which spread over this area throughout the Palaeozoic and Mesozoic times, became driven back by the physical revolution which began early in Tertiary times, when the folding movements gave rise to the modern Himālayas. As relics

of this ocean have been discovered in Burma and China it will not be surprising to find, when the ground has been more thoroughly explored, that highly fossiliferous rocks are preserved also in the Tibetan zone beyond the snowy ranges of Nepāl and Sikkim.

Of the minerals of value, graphite has been recorded in the Kumaun Division; coal occurs frequently amongst the Nummulitic (eocene) rocks of the foot-hills and the Gondwāna strata of Darjeeling District; bitumen has been found in small quantities in Kumaun; stibnite, a sulphide of antimony, occurs associated with ores of zinc and lead in well-defined lodes in Lāhul; gold is obtained in most of the rivers, and affords a small and precarious living for a few washers; copper occurs very widely disseminated and sometimes forms distinct lodes of value in the slaty series south of the snowy range, as in the Kulū, Kumaun, and Darjeeling areas; ferruginous schists sometimes rich in iron occur under similar geological conditions, as in Kāngra and Kumaun; sapphires of considerable value have been obtained in Zāskār and turquoise from the central highlands; salt is being mined in quantity from near the boundary of the Tertiary and older rocks in the State of Mandi; borax and salt are obtained from lakes beyond the Tibetan border; slate-quarrying is a flourishing industry along the southern slopes of the Dhaola Dhār in Kāngra District; mica of poor quality is extracted from the pegmatites of Kulū; and a few other minerals of little value, besides building stones, are obtained in various places. A small trade is developed, too, by selling the fossils from the Spiti shales as sacred objects.

The general features of the great variety in vegetation have been illustrated in the quotation from Mr. Freshfield's description of Sikkim. These variations are naturally due to an increase in elevation, and to the decrease in rainfall and humidity passing from south to north, and from east to west. The tropical zone of dense forest extends up to about 6,500 feet in the east, and 5,000 feet in the west. In the Eastern Himālayas orchids are numerically the predominant order of flowering plants; while in Kumaun about 62 species, both epiphytic and terrestrial, have been found. A temperate zone succeeds, ranging to about 12,000 feet, in which oaks, pines, and tree-rhododendrons are conspicuous, with chestnut, maple, magnolia, and laurel in the east. Where rain and mist are not excessive, as for example in Kulū and Kumaun, European fruit trees (apples, pears, apricots, and peaches) have been

naturalized very successfully, and an important crop of potatoes is obtained in the west. Above about 12,000 feet the forests become thinner. Birch and willow mixed with dwarf rhododendrons continue for a time, till the open pasture land is reached, which is richly adorned in the summer months with brilliant Alpine species of flowers. Contrasting the western with the eastern section we find that the former is far less rich, though it has been better explored, while there is a preponderance of European species. A fuller account of the botany of the Himālayas will be found in Vol. I of the *Imperial Gazetteer*, chap. iv.

To obtain a general idea of the fauna of the Himālayas it is sufficient to consider the whole system as divided into two tracts: namely, the area in the lower hills where forests can flourish, and the area above the forests. The main characteristics of these tracts have been summarized by the late Dr. W. T. Blanford[1]. In the forest area the fauna differs markedly from that of the Indian Peninsula stretching away from the base of the hills. It does not contain the so-called Aryan element of mammals, birds, and reptiles which are related to Ethiopian and Holarctic genera, and to the pliocene Siwālik fauna, nor does it include the Dravidian element of reptiles and batrachians. On the other hand, it includes the following animals which do not occur in the Peninsula—Mammals: the families Simiidae, Procyonidae, Talpidae, and Spalacidae, and the sub-family Gymnurinae, besides numerous genera, such as *Prionodon*, *Helictis*, *Arctonyx*, *Atherura*, *Nemorhaedus*, and *Cemas*. Birds: the families Eurylaemidae, Indicatoridae, and Heliornithidae, and the sub-family Paradoxornithinae. Reptiles: Platysternidae and Anguidae. Batrachians: Dyscophidae, Hylidae, Pelobatidae, and Salamandridae. Compared with the Peninsula, the fauna of the forest area is poor in reptiles and batrachians.

'It also contains but few peculiar genera of mammals and birds, and almost all the peculiar types that do occur have Holarctic affinities. The Oriental element in the fauna is very richly represented in the Eastern Himālayas and gradually diminishes to the westward, until in Kashmīr and farther west it ceases to be the principal constituent. These facts are consistent with the theory that the Oriental constituent of the Himālayan fauna, or the greater portion of it, has migrated into the mountains from the eastward at a comparatively recent period. It is an important fact that this migration appears to have been from Assam and not from the Peninsula of India.'

[1] 'The Distribution of Vertebrate Animals in India, Ceylon, and Burma,' *Proceedings, Royal Society*, vol. lxvii, p. 484.

Dr. Blanford suggested that the explanation was to be found in the conditions of the glacial epoch. When the spread of snow and ice took place, the tropical fauna, which may at that time have resembled more closely that of the Peninsula, was forced to retreat to the base of the mountains or perished. At such a time the refuge afforded by the Assam Valley and the hill ranges south of it, with their damp, sheltered, forest-clad valleys, would be more secure than the open plains of Northern India and the drier hills of the country south of these. As the cold epoch passed away, the Oriental fauna re-entered the Himālayas from the east.

Above the forests the Himālayas belong to the Tibetan sub-region of the Holarctic region, and the fauna differs from that of the Indo-Malay region, 44 per cent. of the genera recorded from the Tibetan tract not being found in the Indo-Malay region. During the glacial epoch the Holarctic forms apparently survived in great numbers.

Owing to the rugged nature of the country, which makes travelling difficult and does not invite immigrants, the inhabitants of the Himālayas present a variety of ethnical types which can hardly be summarized briefly. Two common features extending over a large area may be referred to. From Ladākh in Kashmīr to Bhutān are found races of Indo-Chinese type, speaking dialects akin to Tibetan and professing Buddhism. In the west these features are confined to the higher ranges; but in Sikkim, Darjeeling, and Bhutān they are found much nearer the plains of India. Excluding Burma, this tract of the Himālayas is the only portion of India in which Buddhism is a living religion. As in Tibet, it is largely tinged by the older animistic beliefs of the people. Although the Muhammadans made various determined efforts to conquer the hills, they were generally unsuccessful, yielding rather to the difficulties of transport and climate than to the forces brought against them by the scanty though brave population of mountaineers. In the twelfth century a Tartar horde invaded Kashmīr, but succumbed to the rigours of the snowy passes. Subsequently a Tibetan soldier of fortune seized the supreme power and embraced Islām. Late in the fourteenth century the Muhammadan ruler of the country, Sultān Sikandar, pressed his religion by force on the people, and in the province of Kashmīr proper 94 per cent. of the total are now Muhammadans. Baltistān is also inhabited chiefly by Muhammadans, but the proportion is much less in Jammu, and beyond the Kashmīr State Islām has few followers. Hinduism becomes an impor-

tant religion in Jammu, and is predominant in the southern portions of the Himālayas within the Punjab and the United Provinces. It is the religion of the ruling dynasty in Nepāl, where, however, Buddhism is of almost equal strength. East of Nepāl Hindus are few. Where Hinduism prevails, the language in common use, known as Pahārī, presents a strong likeness to the languages of Rājputāna, thus confirming the traditions of the higher classes that their ancestors migrated from the plains of India. In Nepāl the languages spoken are more varied, and Newārī, the ancient state language, is akin to Tibetan. The Mongolian element in the population is strongly marked in the east, but towards the west has been pushed back into the higher portion of the ranges. In Kumaun are found a few shy people living in the recesses of the jungles, and having little intercourse with their more civilized neighbours. Tribes which appear to be akin to these are found in Nepāl, but little is known about them. North of Assam the people are of Tibeto-Burman origin, and are styled, passing from west to east, the Akās, Daflās, Mīris, and Abors, the last name signifying 'unknown savages.' Colonel Dalton has described these people in his *Ethnology of Bengal*.

From the commercial point of view the agricultural products of the Himālayas, with few exceptions, are of little importance. The chief food-grains cultivated are, in the outer ranges, rice, wheat, barley, *maruā*, and amaranth. In the hot, moist valleys, chillies, turmeric, and ginger are grown. At higher levels potatoes have become an important crop in Kumaun; and, as already mentioned, in Kulū and Kumaun European fruits have been successfully naturalized, including apples, pears, cherries, and strawberries. Two crops are obtained in the lower hills; but cultivation is attended by enormous difficulties, owing to the necessity of terracing and clearing land of stones, while irrigation is practicable only by long channels winding along the hill-sides from the nearest suitable stream or spring. As the snowy ranges are approached barley and buckwheat, grown during the summer months, are the principal crops, and only one harvest in the year can be obtained. Tea gardens were successfully established in Kumaun during the first half of the nineteenth century, but the most important gardens are now situated in Kāngra and Darjeeling. In the latter District cinchona is grown for the manufacture of quinine and cinchona febrifuge.

The most valuable forests are found in the Outer Himālayas, yielding a number of timber trees, among which may be men-

tioned *sāl*, *shīsham* (*Dalbergia Sissoo*), and *tūn* (*Cedrela Toona*). Higher up are found the *deodār* and various kinds of pine, which are also extracted wherever means of transport can be devised. In the Eastern Himālayas wild rubber is collected by the hill tribes already mentioned, and brought for sale to the Districts of the Assam Valley.

Communications within the hills are naturally difficult. Railways have hitherto been constructed only to three places in the outer hills: Jammu in the Kashmīr State, Simla in the Punjab, and Darjeeling in Bengal. Owing to the steepness of the hill-sides and the instability of the strata composing them, these lines have been costly to build and maintain. A more ambitious project is now being carried out to connect the Kashmīr Valley with the plains, motive power being supplied by electricity to be generated by the Jhelum river. The principal road practicable for wheeled traffic is also in Kashmīr, leading from Rāwalpindi in the plains through Murree and Bāramūla to Srīnagar. Other cart-roads have been made connecting with the plains the hill stations of Dharmsāla, Simla, Chakrāta, Mussoorie, Dalhousie, Nainī Tāl, and Rānīkhet. In the interior the roads are merely bridle-paths. The great rivers flowing in deep gorges are crossed by suspension bridges made of the rudest materials. The sides consist of canes and twisted fibres, and the footway may be a single bamboo laid on horizontal canes supported by ropes attached to the sides. These frail constructions, oscillating from side to side under the tread of the traveller, are crossed with perfect confidence by the natives, even when bearing heavy loads. On the more frequented paths, such as the pilgrim road from Hardwār up the valley of the Ganges to the holy shrines of Badrināth and Kedārnāth, more substantial bridges have been constructed by Government, and the roads are regularly repaired. Sheep and, in the higher tracts, yaks and crosses between the yak and ordinary cattle are used as beasts of burden. The trade with Tibet is carried over lofty passes, the difficulties of which have not yet been ameliorated by engineers. Among these the following may be mentioned: the Kangwa La (15,500 feet) on the Hindustān-Tibet road through Simla; the Mānā (18,000), Nitī (16,570), and Balcha Dhurā in Garhwāl; the Anta Dhurā (17,270), Lampiya Dhurā (18,000), and Lipū Lekh (16,750) in Almorā; and the Jelep La (14,390) in Sikkim.

[More detailed information about the various portions of the Himālayas will be found in the articles on the political

divisions referred to above. An admirable summary of the orography of the Himālayas is contained in Lieut.-Col. H. H. Godwin-Austen's presidential address to the Geographical Section of the British Association in 1883 (*Proceedings, Royal Geographical Society*, 1883, p. 610; and 1884, pp. 83 and 112, with a map). Fuller accounts of the botany, geology, and fauna are given in E. F. Atkinson's *Gazetteer of the Himālayan Districts in the North-Western* [United] *Provinces*, 3 vols. (1882–6). See also General Strachey's 'Narrative of a Journey to Mānasarowar,' *Geographical Journal*, vol. xv, p. 150. More recent works are the *Kāngra District Gazetteer* (Lahore, 1899); C. A. Sherring, *Western Tibet and the British Borderland* (1906); and D. W. Freshfield, *Round Kangchenjunga* (1903), which contains a full bibliography for the Eastern Himālayas. An account of the Himālayas by officers of the Survey of India and the Geological department is under preparation.]

Rājmahāl Hills.—Hilly tract in Santāl Parganas District of Bengal, lying between 24° 30′ and 25° 15′ N. and 87° 21′ and 87° 49′ E., and estimated to cover an area of 1,366 square miles. The height nowhere exceeds 2,000 feet above sea-level, and the average elevation is considerably less. Among the highest ridges are Morī and Sundgārsā. The narrow valleys in these hills belong to the Government estate known as the Dāman-i-koh, which extends 24 miles north and south, with an average width of 5 miles, and is surrounded by hills on every side. The Rājmahāl Hills were long regarded as a continuation of the Vindhyan range of Central India; but Mr. V. Ball, of the Geological Survey, after a detailed examination of these hills, came to the conclusion that they form an isolated group, the north-eastern extremity of which constitutes the turning-point of the Ganges. The Rājmahāl Hills consist of overflowing basaltic trap of comparatively recent date, resting upon coal measures and metamorphic rocks of gneissose character, forming part of the Lower Gondwāna system. The hills leave only a narrow passage between their northern flank and the Ganges channel; and in Mughal times this pass, known as TELIĀGARHI, was of great strategic importance, and was defended by a large stone fort, the ruins of which are still to be seen. The loop-line of the East Indian Railway follows this route. The hills are inhabited by the Pahāria races, who are described in the article on the SANTĀL PARGANAS. A peculiar feature of these hills is the chain of level plateaux which are found upon the crests of the ridges. Upon these

small plateaux the Pahārias have built their houses; and they are cultivated with the ordinary plains crops, millets, *sarguja* (*Guizotia oleifera*), pulses, and even rice covering the hill-tops, while mangoes, jack-fruit trees, and palm trees thrive luxuriantly. The approach from the plains below to each plateau is jealously guarded by a steep ladder of boulders. The slopes of the hills yield large quantities of bamboos and firewood, and spiked millet is grown in patches everywhere. A large trade has recently sprung up in *sabai* grass (*Ischaemum angustifolium*), which is grown in the hills near Sāhibganj, where it is baled and dispatched by rail to the paper-mills in the neighbourhood of Calcutta.

Kaimur Hills.—The eastern portion of the Vindhyan range, commencing near Katangī in Jubbulpore District of the Central Provinces (23° 26′ N. and 79° 48′ E.). It runs a little north of east for more than 300 miles to Sasarām in Bihār (24° 57′ N. and 84° 2′ E.). The range, after traversing the north of Jubbulpore District and the south-east of Maihar State, turns to the east and runs through Rewah territory, separating the valleys of the Son and Tons rivers, and continues into Mirzāpur District of the United Provinces and Shāhābād of Bengal. Its maximum width is 50 miles. In the Central Provinces the appearance of the range is very distinctive. The rock formation is metamorphic and the strata have been upheaved into an almost vertical position, giving the range the appearance of a sharp ridge. In places the range almost disappears, being marked only by a low rocky chain, and in this portion it never rises more than a few hundred feet above the plain. The range enters Central India at Jukehi in Maihar State (23° 29′ N. and 80° 27′ E.), and runs for 150 miles in a north-easterly direction, forming the northern wall of the Son valley and overhanging the river in a long bold scarp of sandstone rock, from which near Govindgarh a branch turns off to the north-west. The range here attains an elevation of a little over 2,000 feet. In Mirzāpur the height of the range decreases in the centre, to rise again to over 2,000 feet at the rock of Bijaigarh with its ancient fort. Interesting relics of prehistoric man have been found in the caves and rock-shelters of the hills here, in the form of rude drawings and stone implements. In Shāhābād District the summit of the hills consists of a series of saucer-shaped valleys, each a few miles in diameter, containing a deposit of rich vegetable mould in the centre and producing the finest crops. The general height of the plateau is here 1,500 feet above sea-

level. The sides are precipitous, but there are several passes, some of which are practicable for beasts of burden. The ruined fort of ROHTĀS is situated on these hills. The rocks throughout consist principally of sandstones and shales.

Singālilā.—Hill range in Darjeeling District, Bengal, lying between 26° 38′ and 27° 42′ N. and 88° 0′ and 88° 9′ E., and consisting of an immense spur 60 miles long which stretches south from Kinchinjunga to the plains of India and separates Sikkim and Darjeeling District from Nepāl. The waters from its west flank flow into the Tāmbar, and those from the east into the Great Rangīt, a feeder of the Tīsta. The highest peaks are Singālilā (12,130 feet), SANDAKPHŪ (11,930 feet), PHALŪT (11,811 feet), and SABARGAM (11,636 feet).

Chilka Lake.—A shallow inland gulf, situated between 19° 28′ and 19° 56′ N. and 85° 6′ and 85° 86′ E., in the south-east corner of Purī District, Bengal, and in the extreme south extending into the Ganjām District of Madras. A long sandy ridge, in places little more than 200 yards wide, separates it from the Bay of Bengal, with which its only connexion is by a single narrow mouth intersecting this ridge towards its centre. On the west and south the lake is walled in by lofty hills, while to the north it loses itself in endless shallows, sedgy banks, and islands just peeping above the surface, formed year by year from the silt which the rivers bring down. The lake spreads out into a pear-shaped expanse of water 44 miles long, of which the northern half has a mean breadth of about 20 miles, while the south tapers into an irregularly curved point, barely averaging 5 miles wide. Its smallest area is 344 square miles in the dry season, increasing to about 450 during the rainy season; and the average depth is from 3 to 5 feet, scarcely anywhere exceeding 6 feet. The bed is a very few feet below the high-water level of the sea, although in some parts it is slightly below low-water mark. The narrow tidal stream, which rushes through the neck connecting the lake with the sea, suffices to keep the water distinctly salt during the dry months from December to June. But once the rains have set in, and the Bhārgavī and Dayā rivers come pouring down upon its northern extremity, the sea-water is gradually driven out and the Chilka becomes a fresh-water lake. This changeable mass of water forms one of a series of lacustrine formations along the western shores of the Bay of Bengal, the result of a perpetual war going on between the rivers and the sea—the former struggling to find vent for their water and silt, the latter repelling them with its sand-laden currents.

The Chilka may be regarded as a gulf of the original Bay of Bengal. On the south, a bold, barren spur of hills runs down to the coast; on the north the land-making rivers have pushed out their rounded mouths and flat deltas into the ocean. Nor has the sea been idle. Meeting and overmastering the languid river-discharge that enters the Chilka, it has joined the two extremities with a bar of sand, and thus formed a lake. The delicate process of land-making from the river silt at the north-east end of the lake is slowly but steadily going on, while the bar-building sea is still busily at work. Old documents show that a century ago the neck of land dividing the lake from the sea was only from half a mile to a mile broad in places where it is now two miles; and the opening in the bar, which was a mile wide in 1780 and had to be crossed in large boats, was described forty years later as choked up. Shortly before 1825 an artificial mouth had to be cut; and although this also rapidly began to silt up, it remained, as late as 1837, more than three times its present breadth. The difficulty in maintaining an outlet from the Chilka forms one of the chief obstacles to utilizing the lake as an escape for the floods that desolate the delta. Engineers report that, although it would be easy and cheap to cut a channel, it would be very costly and difficult to keep it open; and that each successive mouth would speedily choke up and share the fate of its predecessors.

The scenery of the Chilka is very varied, and in parts exceedingly picturesque. In the south and west hill ranges bound its shores; and in this part it is dotted with a number of small rocky islands. Proceeding northwards, the lake expands into a majestic sheet of water. Half-way across is Nalbana, literally 'the reed forest,' an island about 5 miles in circumference, scarcely anywhere rising more than a few inches above water-level. This island is altogether uninhabited, but is regularly visited by parties of thatchers from the mainland, who cut the reeds and high grasses with which it is covered. On the eastern side of the lake lie the islands of Pārikūd, with new silt formations behind and now partially joined to the narrow ridge of land which separates the Chilka from the sea. At some places they emerge almost imperceptibly from the water; at others, they spread out into well-raised rice-fields. Their northern extremity slopes gracefully down to the lake like an English park, dotted with fine trees, and backed by noble masses of foliage. Water-fowl of all kinds are very abundant in every part of the lake. Beyond the northern end of Pārikūd, the lake gradually shallows until it becomes solid

ground, for here the Purī rivers empty themselves and the process of land-making is going on. The northern shores of the Chilka comprise the *parganas* of Sirai and Chaubīskūd, and it is these tracts which have to bear the greatest suffering in times of general inundation in Purī.

At its southern extremity in the Ganjām District of Madras stands the village of Rambha. Before Ganjām town was overwhelmed with fever and while it was still the capital of the District which bears its name, this used to be a favourite resort of its European residents in the hot months.

A tidal canal 7 miles long connects the lake with the Rushikulya river and is navigable throughout the year. Large quantities of grain are imported from Orissa across the lake and along this canal, and salt is exported in return. The boats employed are flat-bottomed vessels, which are poled against the wind or drift before it under crazy mat-sails.

Sāgar Island.—Island at the mouth of the Hooghly river in the Twenty-four Parganas District of Bengal, lying between 21° 36′ and 21° 56′ N. and 88° 2′ and 88° 11′ E. The name means 'the sea,' and situated, as it is, at the point where the holy Ganges once mingled its waters with the Bay, the island is regarded as peculiarly sacred. It is the scene of a great annual bathing festival, where thousands of pilgrims congregate from all parts of India to wash away their sins. A good deal of business takes place in articles from Calcutta, such as mats and stoneware. Much progress has been made of recent years in the reclamation of the island, the north part of which is now well cultivated; but the south is still dense jungle. The cyclone of 1864 caused enormous destruction and loss of life, and only 1,500 out of a population of 5,600 survived the catastrophe. There is a lighthouse on the island.

Ganges (*Gangā*).—The great river of Northern India which carries off the drainage of the Southern Himālayas, and also a smaller volume received from the northern and eastern slopes of the Vindhyas. It rises in the Tehrī State, in 30° 55′ N. and 79° 7′ E., where it issues under the name of Bhāgīrathi from an ice cave at the foot of a Himālayan snow-bed near Gangotrī, 13,800 feet above the level of the sea. During its earlier course it receives the Jāhnavī from the north-west, and subsequently the Alaknandā, after which the united stream is called Ganges. It pierces the Himālayas at Sukhī, and turns south-west to Hardwār. From this point it flows south and south-east between the Meerut and Rohilkhand Divisions of the United Provinces, and then separates

the latter from the Agra Division, and flows through the eastern part of Farrukhābād District. It next forms the south-western boundary of Oudh, and then crosses the Districts of Allahābād, Mirzāpur, Benares, and Ghāzīpur, after which it divides the Districts of Ghāzīpur and Balliā from Bengal. The Ganges is a considerable river even at Hardwār, where the Upper Ganges Canal starts, and it is tapped again at Naraura for the Lower Ganges Canal. It thus supplies the largest irrigation works in the United Provinces, and is also the source of the water-supply of the cities of Meerut (by a canal), Cawnpore, and Benares. Its chief tributaries are: the Rāmgangā (Farrukhābād), Jumna and Tons (Allahābād), Gumtī (Ghāzīpur), and Gogrā (Balliā), while smaller affluents are the Mālin (Bijnor), Būrhgangā (Meerut), Mahāwa (Budaun), Sot or Yār-i-Wafādār (Shāhjahānpur), Būrhgangā and Kālī Nadī (Farrukhābād), Isan (Cawnpore), Pāndū (Fatehpur), Jirgo (Mirzāpur), Barnā (Benares), Gāngī and Besū (Ghāzīpur), and Chhotī Sarjū (Balliā), which is called the Tons in its upper portion. The principal towns on or near its banks in the United Provinces are: Srīnagar (on the Alaknandā), Hardwār, Garhmuktesar, Anūpshahr, Soron, Farrukhābād (now left some miles away), Kanauj, Bilhaur, Bithūr, Cawnpore, Dalmau, Mānikpur, Karā, Allahābād, Sirsā, Mirzāpur, Chunār, Benares, Ghāzīpur, and Balliā.

Impinging on Shāhābād District of Bengal, in 25° 31′ N. and 83° 52′ E., the Ganges forms the boundary of this District, separating it from the United Provinces, till it receives as a tributary the GOGRĀ on the north bank. It shortly afterwards receives another important tributary, the SON, from the south, then passes Patna, and obtains another accession to its volume from the GANDAK, which rises in Nepāl. Farther to the east, it receives the KOSĪ, and then, skirting the Rājmahāl Hills, turns sharply to the south, passing near the site of the ruined city of Gaur. About 20 miles farther on, the Ganges begins to branch out over the level country; and this spot marks the commencement of its delta, being 220 miles in a straight line, or nearly 300 by the windings of the river, from the Bay of Bengal. The present main channel, assuming the name of the PADMĀ, proceeds in a south-easterly direction past Pābna to Goalundo, where it is joined by the Jamunā, the main stream of the BRAHMAPUTRA. The bed is here several miles wide, and the river is split up into several channels, flowing between constantly shifting sandbanks and islands. During the rains the current is very strong, and even steamers find

difficulty in making headway against it. This vast confluence of water rushes towards the sea, joining the great MEGHNĀ estuary in 23° 13′ N. and 90° 33′ E., after the Ganges has had a course of 540 miles in Bengal, and 1,557 miles from its source.

The Meghnā estuary, however, is only the largest and most easterly of a great number of Ganges mouths, among which may be mentioned the HOOGHLY, Mātla, Raimangal, Mālanchā, and HARINGHĀTA. The most westerly and the most important for navigation is the Hooghly, on which stands Calcutta. This receives the water of the three westernmost distributary channels that start from the parent Ganges in Murshidābād District (generally known as the NADIĀ RIVERS, one of which takes again the name of Bhāgīrathi), and it is to this exit that the sanctity of the river clings. Between the Hooghly on the west and the Meghnā on the east lies the Ganges delta. The upper angle of this consists of the Districts of Murshidābād, Nadiā, Jessore, and the Twenty-four Parganas. These Districts have for the most part been raised above the level of periodical inundation by the silt deposits of the Ganges and its offshoots; and deltaic conditions now exist only in the eastern Districts of Khulnā, Farīdpur, and Backergunge, and towards the southern base of the delta, where the country sinks into a series of great swamps, intersected by a network of innumerable channels, and known as the SUNDARBANS.

In its course through Bengal, the Ganges rolls majestically down to the sea in a bountiful stream, which never becomes a merely destructive torrent in the rains and never dwindles away in the hottest summer. Embankments are seldom required to restrain its inundations, for the alluvial silt which it spills over its banks, year by year, affords to the fields a top-dressing of inexhaustible fertility. If one crop be drowned by the flood, the cultivator calculates that his second crop will abundantly requite him. In Eastern Bengal, in fact, the periodic inundations of the Ganges and its distributaries render the country immune from the results of a scanty rainfall and make artificial irrigation unnecessary.

Until some 400 years ago the course of the Ganges, after entering Bengal proper, was by the channel of the Bhāgīrathi and Hooghly as far as the modern Calcutta, whence it branched south-eastwards to the sea, down what is still known as the Adi Gangā, which corresponds for part of its course with TOLLY'S NULLAH. By degrees this channel silted up and

became unequal to its task, and the main stream of the Ganges was thus obliged to seek another outlet. In this way the ICHĀMATĪ, the JALANGĪ, and the MĀTĀBHĀNGA became in turn the main stream. The river tended ever to the east; and at last, aided perhaps by one of the periodic subsidences of the unstable surface of the country, it broke eastwards right across the old drainage channels, until it was met and stopped by the Brahmaputra. Great changes still take place from time to time in the river-bed, and alter the face of the country. Extensive islands are thrown up and attach themselves to the bank; while the river deserts its old bed and seeks a new channel, it may be many miles off. Such changes are so rapid and on so vast a scale, and the eroding power of the current upon the bank is so irresistible, that it is considered perilous to build any structure of a large or permanent character on the margin.

The junction of two or more rivers, called Prayāg, is usually considered sacred; but that of the Ganges and Jumna at Allahābād, where according to popular belief a third river, the Saraswatī, which sinks into the sands at Bhatner in Rājputāna, reappears from its subterranean course, is one of the most holy places in India. Here, on the spit of land below the fort, a large bathing festival is held annually in the month of Māgh (January). Every twelve years the fair is called the *Kumbh melā*, as it is held when Jupiter is in Aquarius (*kumbh*) and the sun in Aries, and the efficacy of bathing is increased, large numbers of pilgrims from every part of India flocking to the junction. At the *Kumbh melā* in 1894 the attendance was estimated at a million to a million and a half.

The holiest places upon the banks of the Ganges in Bengal are SONPUR at its confluence with the Gandak, and SĀGAR ISLAND at the mouth of the Hooghly. Both places are the scene of annual bathing festivals, which are frequented by thousands of pilgrims from all parts of India. Even at the present day, the six years' pilgrimage from the source of the Ganges to its mouth, and back again, known as *pradakshina*, is performed by many; and a few fanatical devotees may be seen wearily accomplishing this meritorious penance by measuring their length.

Most rivers in India have sanctity attached to them, but the Ganges is especially sacred. Its importance in Vedic literature is slight, but in the epics and Purānas it receives much attention. Sāgar, the thirty-eighth king of the Solar Dynasty, had

performed the great horse-sacrifice (*Asvamedha*) ninety-nine times. In this ceremony the horse wandered over the world, unhaltered and never guided or driven. Every country it entered was conquered by the following army, and on its return it was sacrificed to the gods. When Sāgar drove out a horse for the hundredth time, the god Indra stole it and tied it up in Pātāl (the under-world) near the place where a sage, Kapila Muni, was meditating. Sāgar had two wives, one of whom bore Asmanjas, and the other had sixty thousand sons who were following the horse. The sons found it, and believing Kapila to be the thief abused him, and were consumed to ashes in consequence of the sage's curse. Ansmān, son of Asmanjas, had gone in search of his uncles, and finding the horse took it home. Garuda, the mythical half-man, half-bird, king of the snakes, told him that the sin of those who had abused Kapila could best be removed by bringing to earth the Ganges, which then flowed in heaven (Brahmā Lok). In spite of much prayer and the practice of austerities by Ansmān and his son, Dalīp, this could not be brought about; but Bhāgīrath, son of Dalīp, persuaded Brahmā to grant him a boon, and he chose the long-sought permission to allow the Ganges to flow on this world. Brahmā agreed, but told Bhāgīrath that the earth could not sustain the shock, and advised him to consult Siva, who consented to break the force of the river by allowing it to fall on his head. The ice-cavern beneath the glacier, from which the stream descends, is represented as the tangled hair of Siva. One branch, the Mandākinī, still flows through Brahmā Lok; a second, which passes through Pātāl, washed away the sin of the sixty thousand; and the third branch is the Ganges[1]. Besides the places which have already been referred to, Gangotrī, near the source, Devaprayāg, Garhmuktesar, Soron, Dalmau, and Benares are the principal bathing resorts. The sanctity of the river still exists everywhere, though according to prophecy it should have passed away to the Narbadā a few years ago. Dying persons are taken to expire on its banks, corpses are carried to be burned there, and the ashes of the dead are brought from long distances to be thrown into its holy stream, in the hope of attaining eternal bliss for the deceased. About the time of the regular festivals the roads to the river are crowded with pilgrims, who keep up an incessant cry of salutation to the great goddess, *Gangā jī kī jai!* On their return

[1] A variant of the legend represents the ashes of the sixty thousand as having been purified by the BHĀGĪRATHI, a branch of the Ganges.

they carry away bottles of the sacred water to their less fortunate relations.

Till within the last forty years of the nineteenth century, after which the extension of railways provided a quicker means of transport, the magnificent stream of the Ganges formed almost the sole channel of traffic between Upper India and the sea-board, and high masonry landing-places for steamers still exist at Allahābād and other places lower down, though they are no longer used. The products of the Gangetic plain, and the cotton of the Central Provinces and Central India, used formerly to be conveyed by this route to Calcutta. At present it is chiefly used for the carriage of wood and grain in many parts of its course, and also of oilseeds, saltpetre, stone, and sugar in the eastern portion of the United Provinces. The principal import to these Provinces is rice, but manufactured goods and metals are also carried in considerable quantities. The canal dam at Naraura in Bulandshahr District has stopped through traffic between the upper and lower courses of the Ganges.

In Bengal, however, the Ganges may yet rank as one of the most-frequented waterways in the world. The downward traffic is most brisk in the rainy season, when the river comes down in flood. During the rest of the year the boats make their way back up stream, often without cargoes, either helped by a favourable wind or laboriously towed along the bank. The most important traffic in Bengal is in food-grains and oilseeds; and, though no complete statistics are available, it appears probable that the actual amount of traffic on the Ganges by native craft has not at all diminished since the opening of the railway, to which the river is not only a rival, but a feeder. Railway stations situated on the banks form centres of collection and distribution for the surrounding country, and fishing villages like Goalundo have by this means been raised into river marts of the first magnitude. Steamer services ply along its whole course within Bengal, and many towns lie on its banks, the most important being PATNA and MONGHYR.

Six railway bridges cross the Ganges: near Roorkee, at Garhmuktesar (2,332 feet), Rājghāt, Cawnpore (2,900 feet), and Benares (3,518 feet), while the sixth, measuring 3,000 feet, was completed near Allahābād in 1905. There is no bridge below Benares, though the construction of a railway bridge near Sāra Ghāt in Bengal has been sanctioned. The normal flood discharge varies from 207,000 cubic feet per second at Hardwār, where the bed is steep and only 2,500 feet wide, to 300,000 at

Garhmuktesar and 150,000 at Naraura (width at canal weir and about a mile above it, 3,880 feet). The bridge at Allahābād is designed to allow the discharge of a million cubic feet per second. The normal flood-level falls from 942 feet above the sea at Hardwār to 287 at Allahābād.

Gogrā (*Ghāgra*; Skt. *gharghara* = 'rattling' or 'laughter'; other names, Sarjū or Sarayū (the *Sarabos* of Ptolemy), and in the lower part of its course Deohā or Dehwā).—The great river of Oudh. Rising in Tibet (30° 40′ N. and 80° 48′ E.), it flows through Nepāl under the name of Karnāli or Kauriāla, piercing the Himālayas at Shīshā Pānī, and shortly after throws off a branch to the east called the Girwā, which now brings down the main stream. The Kauriāla enters British territory between Kherī and Bahraich, forming the boundary between those Districts. It receives the Girwā again not many miles from the border, and just below the Suhelī, one of the three branches of the SĀRDĀ. The main branch of the Sārdā, called Dahāwar, joins it at Mallānpur, a few miles below Katai Ghāt, near which place the Sarjū is received. The Sarjū formerly joined the Gogrā in Gondā, but early in the nineteenth century a European timber merchant diverted its course into an old bed. At Bahrāmghāt a third branch of the Sārdā, named Chaukā, adds to its volume, and from this point the united stream is regularly called Gogrā or Sarjū, though these names are sometimes applied at Mallānpur. From the name Sarjū is derived the appellation of an important tribe of Brāhmans called Sarwaria, a contraction of Sarjūpāria, meaning those who 'dwell beyond' (i.e. on the north side of) the Sarjū. The Gogrā now turns east and divides Gondā on its north bank from Bāra Bankī and Fyzābād on the south. After passing Ajodhyā city, it separates Bastī and Gorakhpur from Fyzābād, and then from Azamgarh and Balliā, and receives the Rāptī and Little Gandak from the north. After being joined by the Chaukā it receives little drainage from the right bank, and is in fact higher than the valley of the Gumtī which lies south of it. In Azamgarh a branch is given off, called the Chhotī ('lesser') Sarjū, which was apparently an old bed of the river, and joins the Ganges after a long course through Azamgarh, Ghāzīpur, and Balliā. East of Gorakhpur District the Gogrā forms the boundary between Sāran District of Bengal and Balliā District of the United Provinces for about 40 miles. It falls into the Ganges in 25° 44′ N. and 84° 42′ E.

The Kauriāla and Girwā are both navigable for a short distance before entering British territory; and until the open-

ing of the Bengal and North-Western Railway, within the last twenty years, traffic on the Gogrā was of great importance. Many years ago a pilot service existed for a short time, and steamers plied as far as Bahrāmghāt in Bāra Bankī District. The traffic is still considerable, and large quantities of timber, grain, and spices come down from Nepāl, or are carried in the lower reaches. At Bahrāmghāt saw-mills used to be worked by the Forest department, but have recently been sold. The most important place on the banks of the river is Fyzābād, with Ajodhyā, the sacred birthplace of Rāma, adjoining it. Tāndā in Fyzābād and Barhaj in Gorakhpur are also towns of some size, engaged in trade. The chief mart on the banks of the Gogra in Bengal is Revelganj in Sāran District. The trade of Nawābganj in Gondā, which stands some miles from the river, is now largely carried by rail. River steamers from Patna ply as high as Ajodhyā, calling at many places and competing with the railways for both goods and passenger traffic.

The river is spanned by two fine railway bridges: the Elgin Bridge near Bahrāmghāt (3,695 feet long), and a bridge at Turtīpār (3,912 feet). The variability of its course is shown by the method of construction of the first-named bridge, which was built on dry land, the river being then trained under it. The height above sea-level is 350 feet at Bahrāmghāt and 193 feet at Turtīpār; and the flood discharges are 877,000 and 1,111,000 cubic feet per second respectively. At Ajodhyā a bridge of boats is maintained, except during the rains, when a steamer plies. Another important ferry is at Dohrīghāt on the road from Azamgarh to Gorakhpur.

Son River (Sanskrit, *Suvarna* or 'gold'; likewise called *Hiranya-Vāha* or *Hiranya-Vāhu*; the *Sonos* of Arrian; also identified with the *Erannoboas* of Arrian).—A large river of Northern India, which, flowing from the Amarkantak highlands (22° 42′ N., 82° 4′ E.), first north and then east, joins the Ganges 10 miles above Dinapore, after a course of about 487 miles.

The Son rises near the Narbadā at Amarkantak in the Maikala range, the hill on which its nominal source is located being called Sonbhadra or more commonly Sonmundā. It possesses great sanctity, the performance of *sandhyā* on its banks ensuring absolution and the attainment of heaven even to the slayer of a Brāhman. Legends about the stream are numerous, one of the most picturesque assigning the origin of the Son and Narbadā to two tears dropped by Brahmā, one on either side of the Amarkantak range. The Son is frequently

mentioned in Hindu literature—in the Rāmāyanas of Vālmīki and Tulsī Dās, the Bhagwat, and other works.

Soon after leaving its source, the Son falls in a cascade over the edge of the Amarkantak plateau amid most picturesque surroundings, and flows through Bilāspur District of the Central Provinces till it enters the Rewah State at 23° 6′ N. and 81° 59′ E. From this point till it leaves the Central India Agency after a course of 288 miles, the stream flows through a maze of valley and hill, for the most part in a narrow rocky channel, but expanding in favourable spots into magnificent deep broad reaches locally called *dahār*, the favourite resorts of the fisher caste. Following at first a northerly course, near its junction with the Mahānadī river at Sarsi it meets the scarp of the Kaimur Hills and is turned in a north-easterly direction, finally leaving the Agency 5 miles east of Deorā village. In Central India three affluents of importance are received: one on the left bank, the Johillā, which likewise rises at Amarkantak and joins it at Barwālū village; and two which join it on the right bank, the Banās at 23° 17′ N. and 81° 31′ E., and the Gopat near Bardī. In the United Provinces the Son flows for about 55 miles from west to east across Mirzāpur District, in a deep valley never more than 8 or 9 miles broad, often narrowing to a gorge, and receives from the south two tributaries, the Rihand and Kanhar. During the dry season it is shallow but rapid, varying in breadth from 60 to 100 yards, and is easily fordable. The Son enters Bengal in 24° 31′ N. and 83° 24′ E., and flows in a north-westerly direction, separating the District of Shāhābād from Palāmau, Gayā, and Patna, till, after a course within Bengal of 144 miles, it falls into the Ganges in 25° 40′ N. and 84° 59′ E.

So far as regards navigation, the Son is mainly used for floating down large rafts of bamboos and a little timber. During the rainy season, native boats of large tonnage occasionally proceed for a short distance up stream; but navigation is then rendered dangerous by the extraordinary violence of the flood, and throughout the rest of the year becomes impossible owing to the small depth of water. The irrigation system in South Bihār known as the SON CANALS is served by this river, the water being distributed west to Shāhābād and east to Gayā and Patna from a dam constructed at DEHRĪ. In the lower portion of its course the Son is marked by several striking characteristics. Its bed is enormously wide, in some places stretching for three miles from bank to bank. During the greater part of the year this broad channel is merely a waste of drifting sand,

with an insignificant stream that is nearly everywhere fordable. The discharge of water at this time is estimated to fall as low as 620 cubic feet per second. But in the rainy season, and especially just after a storm has burst on the plateau of Central India, the river rises with incredible rapidity. The entire rainfall of an area of about 21,300 square miles requires to find an outlet by this channel, which frequently proves unable to carry off the total flood discharge, calculated at 830,000 cubic feet per second. These heavy floods are of short duration, seldom lasting for more than four days; but in recent years they have wrought much destruction in the low-lying plains of Shāhābād. Near the site of the great dam at Dehrī the Son is crossed by the grand trunk road on a stone causeway; and lower down, near Koelwār, the East Indian Railway has been carried across on a lattice-girder bridge. This bridge, begun for a single line of rails in 1855, and finally completed for a double line in 1870, has a total length of 4,199 feet from back to back of the abutments.

The Son possesses historical interest as being probably identical with the *Erannoboas* of Greek geographers, which is thought to be a corruption of *Hiranya-Vāhu*, or 'the golden-armed' (a title of Siva), a name which the Son anciently bore. The old town of Pālibothrā or Pātaliputra, corresponding to the modern PATNA, was situated at the confluence of the *Erannoboas* and the Ganges; and, in addition, we know that the junction of the Son with the Ganges has been gradually receding westwards. Old channels of the Son have been found between Bankipore and Dinapore, and even below the present site of Patna. In the Bengal Atlas of 1772 the junction is marked near Maner, and it would seem to have been at the same spot in the seventeenth century; it is now about ten miles higher up the Ganges.

Karamnāsā (*Karamnāshā*, 'the destroyer of religious merit'; the *Kommenases* of Arrian).—River of Northern India, rising near Sārodāg in the Kaimur Hills (24° 32′ N., 83° 26′ E.), 18 miles west of Rohtāsgarh in Bengal. It first flows north-west, and near Darihārā begins to form the boundary between the Districts of Shāhābād (Bengal) and Mirzāpur (United Provinces). It then flows north for about 15 miles across Mirzāpur, after which it turns north-east and separates Shāhābād from Benares and Ghāzīpur, until it falls into the Ganges near Chausā, after a total course of about 146 miles. Its tributaries are the Durgautī and Dharmautī, two small streams on the right bank. In the hills, the bed of the Karamnāsā is rocky and its banks

abrupt; but as it debouches upon the plains, it sinks deeply into a rich clay, very retentive of moisture. During the rains small boats can ply as high as the confluence of the Durgautī. There are two falls, called Deo Dharī and Chhanpathar, which attract attention from their height and beauty.

Two legends account for the ill repute of the river. One tells how Rājā Trisanka of the Solar race had killed a Brāhman and contracted an incestuous marriage. He was purged from these sins by a saint who collected water from all the sacred streams of the world and washed him. The bath took place at the spot where the river issues, and this bears for ever the taint of his guilt. The other legend makes Trisanka attempt to ascend into heaven by means of long austerities. Half-way he was suspended head downwards by the gods, and a poisonous moisture exudes from his mouth into the river. The real cause of its ill fame is probably the fact that the Karamnāsā was the boundary of the eastern kingdom of Magadha, which is treated with contempt in Sanskrit literature because its inhabitants were not Aryans. Hindus living on its banks, except those of the highest castes, are not defiled by it, and carry more scrupulous travellers over it for a consideration. There is no regular irrigation from the Karamnāsā.

Gandak, Great.—A river of Northern India. Rising in the central mountain basin of Nepāl, in 27° 27′ N. and 83° 56′ E., where its sources are known as the Sapt Gandakī, or 'country of the seven Gandaks,' it drains the tract between the Dhaulāgiri and Gosainthān mountains. The most important of these contributory streams is the Trisūlgangā, and they all unite before breaking through the mountains at Tribenī. The river is also known in Nepāl as the Sālgrāmi, and in the United Provinces as the Nārāyani; it is the *Kondochates* of the Greek geographers, and according to Lassen the *Sadānīra* ('ever-flowing') of the epics. Crossing the British frontier at Tribenī, it forms the boundary between Champāran District of Bengal and Gorakhpur District of the United Provinces for about 20 miles, after which it flows for 40 miles within Champāran, and then once more separates the Provinces for 12 miles of its course. Thenceforward it forms the boundary between Sāran District on the south-west and Champāran and Muzaffarpur Districts on the north-east, and it finally joins the Ganges opposite Patna, in 25° 41′ N. and 85° 12′ E., after a course in the plains of 192 miles. At first a snow-fed torrent, the Gandak, soon after its entry into British territory, acquires the char-

acter of a deltaic river, its banks being above the level of the surrounding country, which is protected by embankments from inundation. The river is navigable throughout the year by country boats below Bagahā in Champāran District. Rafts of timber pass down it from Nepāl and from the Gorakhpur forests, and grain and sugar are exported by the same route. Navigation is, however, difficult, as the channel during the dry season is narrow and winding, while in the rains it becomes a torrent. In the hot season the river is rarely more than a quarter of a mile across, but in the rains it widens to 2 or 3 miles. It is nowhere fordable, and is continually changing its course. The TRIBENĪ CANAL, now under construction, will carry its waters eastward to within 10 miles of Adāpur in Champāran District, and will irrigate the portion of that District most liable to famine. The SĀRAN CANALS are fed from a side-channel on the right bank of the river. The Būrhi ('old') Gandak, or Sikrāna, an old channel of the river, is described in the article on CHAMPĀRAN DISTRICT. A fine railway bridge on the Bengal and North-Western Railway spans the Gandak near its mouth. The most important place on its bank is HĀJĪPUR on the left bank, and a great bathing festival takes place annually at SONPUR at its confluence with the Ganges.

Kosi (or Kūsī).—River of Nepāl and North Bengal, rising among the eastern Nepāl Himālayas (26° 27′ N. and 87° 6′ E.), in the country known as the Sapt Kosikī, or 'country of the seven Kosis,' of which the most important and best known is the San Kosi. It first takes a south-westerly course for about 60 miles, then flows south and south-east for 160 more, during which it receives on its left bank its two great tributaries, the Aran and Tāmbar. It leaves the mountains at Chatrā in 26° 44′ N. and 87° 6′ E., in a series of cataracts and rapids, and after a southerly course touches upon British territory in the extreme north-east of Bhāgalpur District, in 26° 35′ N. and 87° 5′ E., at which point it is a large river nearly a mile wide. It here assumes the character of a deltaic stream, and runs south with many bifurcations and interlacings, till, after receiving another considerable tributary, the Ghugri, on its left bank, it finally falls into the Ganges in 25° 22′ N. and 87° 17′ E., in Purnea District, after a course within Bengal of about 84 miles.

According to Hindu legend, this river is Kausikī, the daughter of Kusik Rājā, king of Gadhī. Although the daughter of a Kshattriya, she was the wife of a Brāhman; and, on

giving birth to a son who preferred the warlike exploits of his mother's race to the sacred duties of his father's, she became a river.

The Kosi is notorious, even among Bengal rivers, for its vagaries, and remarkable for the rapidity of its stream, the dangerous and uncertain nature of its bed, and the desolation caused by its floods. Tracts inundated by it lapse into sand and jungle, and in this way it has made a wilderness of about half the Madhipurā subdivision of Bhāgalpur. In the early part of the eighteenth century the river passed below Purnea town, but it has since worked westwards, across about 50 miles of country, as indicated by now deserted channels. The Kosi carries a small amount of boat traffic in the lower half of its course through Purnea; but navigation is at all times of the year a matter of much difficulty, as the channels are constantly changing, new ones being yearly opened up and old ones choked by sandbanks, while the bed is full of sunken trees or snags. Moreover, owing to the great velocity of the current, boats have frequently to wait several days for a favourable wind to drive them up some of the reaches, and they require a pilot to precede them and select the channel to be followed. The Kosi has recently been spanned by a fine railway bridge near Katihār, and is also crossed higher up by a ferry from Anchrā Ghāt to Khanwā Ghāt on the west bank, both of which connect the Bengal and North-Western Railway with the Bihār section of the Eastern Bengal State Railway.

Mahānandā.—River of North Bengal and Eastern Bengal, important in the past as forming a boundary between historical divisions of the country, and still much used as a means of communication in its lower reaches. Rising in Mahāldirām, a mountain in the Himālayan range in Darjeeling District, in 26° 56′ N. and 88° 20′ E., it flows generally in a southerly direction till it joins the Ganges in Mālda District, in 24° 28′ N. and 88° 18′ E., after a course of 256 miles. It was formerly a large river and formed the western boundary of the Bārendra division of Bengal, and still earlier of the kingdom of Pundra, or Paundravardhana, the country of the Pods, whose capital was at MAHĀSTHĀN; and it has had a great influence on the recent ethnic distribution of the people. East of its course, the Kochs, or Rājbansis of North Bengal, are the chief element in the population, while to the west they are scarcely found at all. A large proportion of this race are now followers of Islām, and east of the river Musalmāns predominate, while to the west the population is

mainly Hindu. It is also a linguistic boundary, Hindī being spoken to the west of it and Bengali to the east.

The Mahānandā touches upon Jalpaigurī District near the foot of the hills, a short distance above Silīgurī, at which place it receives the waters of the New Bālāsan; and the united stream forms the boundary between that District and Darjeeling for a short distance before it passes into Purnea at Titālya. It has a very rapid current in the upper part of its course, and is subject to heavy freshes which render navigation impracticable. After a tortuous course through Purnea, in which District its chief tributaries are the Dānk, Pitānu, Nāgar, Mechī, and Kankai, and its principal marts KISHANGANJ and BĀRSOI, it enters Mālda and flows south-east through that District, which it divides into two nearly equal portions. It here receives as affluents the Tāngan, Pūrnabhabā, and Kālindrī, which drain the greater portion of Dinājpur, and eventually falls into the Ganges at GODĀGĀRI.

Nadiā Rivers.—A group of offshoots of the Ganges which flow through Nadiā and Murshidābād Districts of Bengal and unite to form the Hooghly. The Nadiā rivers include the BHĀGĪRATHI, the JALANGĪ with the BHAIRAB, and the MĀTĀBHĀNGA with the Churnī. These rivers represent old spill channels of the Ganges, and during the rains still carry down to the sea a portion of the flood-water from that river. Their condition as waterways and as the channels which feed the Hooghly from the Ganges is a matter of much importance to the trade of Calcutta, and during the hot season a weekly register of their depth is published as a guide to native merchants and boatmen. Since the end of the eighteenth century, however, increasing difficulty has been experienced in keeping them open for navigation throughout the year, as if left to themselves they silt up during the dry season. These channels, with an aggregate length of 470 miles, are controlled by Government; and, though no permanent works have been constructed, such measures as are practicable are taken every year to confine the water, by means of bamboo spurs, to a limited channel, so as to force the current to scour the bars and to obtain a depth sufficient for navigation by boats of small draught. For the services rendered tolls are levied at Jangipur, Hānskhāli, and Swarūpganj on vessels using the rivers. In 1902–3 the estimated value of the cargo carried was 183 lakhs; and in 1903–4 the gross revenue amounted to Rs. 1,04,000, but there was a loss of Rs. 16,000 on the year's working.

Bhāgīrathi.—River of Bengal, being an offshoot of the

Ganges, which it leaves in Murshidābād District in 24° 35′ N. and 88° 5′ E.; it is also fed by tributaries from the eastern fringe of the Chotā Nāgpur plateau. After flowing through Murshidābād, it constitutes the boundary between Burdwān and Nadiā Districts, till, after a total course of 140 miles, it unites with the JALANGĪ in 23° 25′ N. and 88° 24′ E., to form the HOOGHLY. From the dawn of history till probably some time in the sixteenth century the Bhāgīrathi formed the main stream of the Ganges; and in the eyes of Hindus this, and not the PADMĀ, is still the sacred stream. The Hindu traditional account of its origin is as follows: King Sagar was an ancestor of Rāma, and had ninety-nine times performed the *Aswamedha jajna* or 'great horse sacrifice,' which consisted in sending a horse round the world, with a defiance to any one to arrest its progress. If the horse returned unopposed, it was understood to be an acquiescence in the supremacy of the challenger, and the animal was then solemnly sacrificed to the gods. King Sagar made preparations for the hundredth performance of this ceremony; but the god Indra, having himself performed the sacrifice a hundred times, was jealous of being displaced by a rival, and therefore stole the horse and concealed it in a subterranean cell, where a holy sage was absorbed in heavenly meditation. The 60,000 sons of Sagar traced the horse to its hiding-place, and, believing the sage to be the author of the theft, assaulted him. The holy man, thus aroused from his meditations, cursed his assailants, who were immediately reduced to ashes and sentenced to hell. A grandson of Sagar, in search of his father and uncles, at last found out the sage, and begged him to redeem the souls of the dead. The holy man replied that this could only be effected if the waters of the Gangā (the aqueous form of Vishnu and Lakshmī) could be brought to the spot to touch the ashes. Now Gangā was residing in heaven under the care of Brahmā, the Creator; and the grandson of Sagar prayed, but unsuccessfully, that the goddess might be sent to the earth. He died without issue, but a son, Bhāgīrath, was miraculously born of his widow, and through his prayers Brahmā allowed Gangā to visit the earth. Bhāgīrath led the way till near the sea, and then declared that he could not show the rest of the road, whereupon Gangā, in order to make sure of reaching the bones of the dead, divided herself into a hundred mouths, thus forming the delta of the Ganges. One of these mouths arrived at the cell, and by washing the ashes completed the atonement for the sin of the sons of king Sagar.

In the past the great capitals of GAUR (Lakhnautī), PANDUA, RĀJMAHĀL, NABADWĪP, and SĀTGAON were situated on the banks of the Bhāgīrathi. Its earliest bed, known as the Saraswatī, left the modern Hooghly at Sātgaon, and pursued a more westerly course to a point near the place where the Dāmodar now joins the Hooghly. Large vessels sailed up this river in the sixteenth century, and its silting up led to the establishment of the port and town of Hooghly by the Portuguese in 1637. Local traditions have preserved no record of the supplanting of the Bhāgīrathi by the present main channel of the Ganges, and it was probably effected very gradually. Changes on a great scale still take place in the bed of the Bhāgīrathi. Thus Nabadwīp was originally situated on the right bank, but the river, after rending in twain the ancient city, now leaves the modern Nadiā on its left bank. The Bhāgīrathi has also eaten away a portion of the battle-field of PLASSEY. In the present day its course frequently changes, and sandbanks and other obstructions are constantly being formed. The bed has largely silted up, and in the hot weather it degenerates into a string of pools connected by shoals which are seldom navigable during this season. It forms a part of the NADIĀ RIVERS system, and a series of efforts have been made by Government to keep its channel clear for navigation, but without very satisfactory results; a new dredging scheme has now been formulated. The chief tributaries of the Bhāgīrathi are: in Murshidābād, the united waters of the Bānsloi and Pāgla, and the Chorā Dekrā; and, in Burdwān, the Ajay and Kharī, all on the right bank. The principal towns on its banks are: in Murshidābād, JANGIPUR, JIĀGANJ, MURSHIDĀBĀD, and BERHAMPORE; in Burdwān, KĀTWA; and in Nadiā, NABADWĪP.

Jalangī (or Khariā).—One of the three rivers in Bengal known as the NADIĀ RIVERS, the other two being the BHĀGĪRATHI and the MĀTĀBHĀNGA. The Jalangī leaves the GANGES at the point where it enters Nadiā District in 24° 11′ N. and 88° 43′ E., and meanders along the north-west of that District for 50 miles, separating it from Murshidābād. It then flows to the south past Krishnagar, the chief town of the District, whence it turns westward, and after a total course of 121 miles meets the Bhāgīrathi at Nabadwīp in 23° 25′ N. and 88° 24′ E., the united stream taking the name of the HOOGHLY. The Jalangī, which was at one time the principal outlet for the Ganges, has, like the other head-waters of the Hooghly, a tendency to silt up, and 36 miles of its upper course have in fact almost entirely closed. It now derives its

main water-supply from the Ganges through the old channel of the upper BHAIRAB, and with it forms part of the NADIĀ RIVERS system. Considerable difficulties have been experienced in keeping the channel open for navigation. The Jalangī is navigable during the rainy season by country boats of 4 tons burden, but in the hot season it is little more than a string of marshes connected by shoals, and is fordable at many points. Navigation is always a matter of great difficulty at this time, and is in most years impossible. The principal marts on its banks are KRISHNAGAR, Karīmpur, Chāpra, and Swarūpganj; their trade is chiefly in grain, oilseeds, and molasses.

Bhairab.—Old river of Bengal. The Bhairab has long been a partly deserted channel, and only sections of it can now be traced; but its name Bhairab ('the terrible') bears witness to the estimation in which it was once held, and in its prime it must have been of great hydrographic importance. The Bhairab takes off from the Ganges almost opposite to where the Mahānandā flows into it; and it is suggested that it originally formed a continuation of the Mahānandā, and that that river was cut into half by the Ganges as it worked its way eastwards. The Bhairab at one time flowed across the present Districts of Murshidābād, Nadiā, Jessore, and Khulnā into the Bay of Bengal, but was intersected and cut into three pieces by the Jalangī and Mātābhānga. In its upper course it at first silted up, but was subsequently forced open again by floods in 1874 at its intake from the Ganges, and expanded into an important distributary which poured its waters into the Jalangī 40 miles farther south. The result was that the channel of the Jalangī above the point of junction began to close up, and the Bhairab is now the channel by which the Jalangī proper derives its main water-supply from the Ganges. Lower down the Bhairab flowed for a short distance through the channels now occupied by the Mātābhānga-Churnī, leaving them at Matiāri, whence it passed on towards Jessore. The main current was subsequently diverted down the Kabadak, which was apparently originally only an offshoot from the Bhairab at Tāhirpur. The Bhairab itself has silted up below Tāhirpur to such an extent that its bed above Jessore town is now little more than a line of marshes. From Basantia south of Jessore town the Bhairab is still a navigable stream and a portion of its waters join the Madhumatī river, while the remainder pass by the Rūpsa river through a separate estuary to the sea.

Mātābhānga River (or Haulī).—One of the three NADIĀ RIVERS of Bengal, the other two being the BHĀGĪRATHI and JALANGĪ. All these rivers are offshoots of the GANGES, and form the head-waters of the HOOGHLY river. The Mātābhānga has its principal off-take from the Ganges in 24° 4′ N. and 88° 48′ E., about 10 miles below the point where the Jalangī diverges from it. The off-take is subject to the same shifting and changing as that of the Bhāgīrathi. Lower down, the Mātābhānga is a comparatively narrow stream with well-defined banks throughout. It flows first in a south-easterly, and afterwards in a tortuous south-westerly direction, to Krishnaganj, due east of Krishnagar, the head-quarters of Nadiā District. During the past century it has had many vicissitudes. It had formerly an outlet to the east of the delta; but, owing to the gradual silting up of this tract, it subsequently left its bed and turning west occupied in turn parts of the channels of the KUMĀR, ICHĀMATĪ, and Churnī rivers. It now joins the HOOGHLY near Chākdaha, in 23° 9′ N. and 88° 29′ E., after a course of 129 miles. For the first 40 miles after leaving the Ganges it is still known as the Haulī or Kumār, while the true Kumār river, locally known as the Pāngāsi, is now connected with it only during the rains. The Ichāmatī is now merely an offshoot of the Mātābhānga. During the rainy season the Mātābhānga is navigable by large boats and river steamers, but during the rest of the year it is almost always closed to traffic.

Kumār.—River of Bengal, locally known as the Pāngāsi. An offshoot of the MĀTĀBHĀNGA, which leaves the main stream near Alamdānga, it flows in a tortuous easterly and south-easterly course first for a few miles through Nadiā District and afterwards through Jessore. The head of the river is closed during the summer by a bar of sand, and the channel has silted up throughout, large boats being able to use it only during the rains. The Kumār is connected by a cross stream with the GARAI, but its main stream is carried away by the Nabagangā, into which it discharges at Māgura.

Ichāmatī.—River of Nadiā District, Bengal. The Ichāmatī is in its present form a branch of the MĀTĀBHĀNGA (an offshoot of the Ganges), which it leaves at Krishnaganj in 23° 24′ N. and 88° 43′ E. It flows south till it enters the Twenty-four Parganas, where it takes the name of JAMUNĀ. The Ichāmatī is a deep river, navigable throughout the year by the largest trading boats. It was probably at one time a main outlet of the Ganges when it was forcing its way eastwards, and

was possibly part of an older stream which was cut in half by that river, there being another river of the same name on the north bank of the Ganges in Pābna District.

Jamunā.—Deltaic distributary of the Ganges in Bengal, or rather the name given to a part of the waters of the ICHĀMATĪ during a section of its course. The Jamunā enters the Twenty-four Parganas at Bāliāni from Jessore District; and after a south-easterly route through the Twenty-four Parganas and Nadiā Districts winds amid the forests and jungles of the Sundarbans, until it empties itself into the Raimangal, at a short distance from the point where the estuary debouches in the Bay of Bengal, in 21° 47′ N. and 89° 13′ E. The Jamunā is a deep river and navigable throughout the year by trading boats cf the largest size, and its breadth varies from 150 to 300 or 400 yards. The Bhāngar line of the CALCUTTA AND EASTERN CANALS strikes this river at Husaināhād.

Hooghly River.—The most westerly, and for commercial purposes the most important, channel by which the waters of the GANGES enter the Bay of Bengal, being formed by the confluence of the three western distributaries of the great stream—the BHĀGĪRATHI, JALANGĪ, and MĀTĀBHĀNGA—which are conjointly known as the NADIĀ RIVERS. The Bhāgīrathi receives also an independent supply of water from the eastern watershed of the Chotā Nāgpur plateau, where its tributaries drain an area of about 8,700 square miles. The Bhāgīrathi joins the Jalangī at Nabadwīp, in 23° 25′ N. and 88° 24′ E., and the distinctive name of the Hooghly is by some assigned to the united rivers from this point; according to others the river does not take this name till just above Sāntipur, 24 miles farther down the stream. The united stream is joined by the Mātābhānga 15 miles below Sāntipur, and it thence proceeds almost due south to Calcutta; it next twists to the south-west, and finally turns south, entering the Bay of Bengal in 22° 13′ N. and 88° 4′ E. After receiving the Bāgher Khāl on the left bank, it marks the boundary between the Twenty-four Parganas on the east and the Districts of Hooghly, Howrah, and Midnapore successively on the west, thus separating the Presidency and Burdwān Divisions.

The head-waters of the Hooghly are important as great highways for inland traffic. Like other deltaic distributaries, they are subject to sudden changes in their channels and to constant silting up; each of them is frequently closed during the dry

season, while in most years the depth then maintained does not exceed 2 feet at the shallower places. During these dry months the waters of the Hooghly are largely supplied by underground infiltration of water into the deep trough which the river has scooped out for itself; and the depth of the channel is maintained by the scouring of the current during the rainy season, when the spill streams from the Ganges and the Chotā Nāgpur tributaries of the Bhāgīrathi pour down enormous volumes of water. The fresh-water supply of the upper reaches of the river is therefore derived partly from the Ganges, partly from the Chotā Nāgpur plateau, and partly from infiltration; and it is estimated that these three sources provide, respectively, 48, 31, and 21 per cent. of the total supply. The strong freshes in the Hooghly have a most beneficial effect in scouring the channels, and it is noteworthy that the ratio of maximum to minimum fresh-water discharge is as high as 13 to 1. The Hooghly receives four tributaries on the right bank. The DĀMODAR flows into it opposite Faltā, 35 miles below Calcutta, and 6 miles farther down it is joined by the RŪPNĀRĀYAN; the Haldī and Rasūlpur flow into the estuary of the river. All these tributaries drain the eastern flank of the Chotā Nāgpur plateau.

The influence of the tides is felt strongly as high up as Nabadwīp, especially during the dry season; and it is estimated that the tidal inflow during the four months of the hot season is more than double the total fresh-water discharge of the year. The tides operate usefully in dispersing the alluvium brought down from above, as well as in providing water for navigation over the shoals at high tide. The difference between the lowest depth of water in the dry season and the highest in the rains is no less than 20 feet 10 inches. The greatest mean rise of tide, about 16 feet, takes place in March, April, and May, with a declining range during the rainy season to a mean of 10 feet, and a minimum during freshes of 3 feet 6 inches.

The tide runs rapidly in the Hooghly, and produces a remarkable example of the fluvial phenomenon known as a 'bore.' This consists of the headwave of the advancing tide, hemmed in where the estuary narrows suddenly and often exceeding 7 feet in height. It is felt as high up as Calcutta, and frequently sinks small boats or dashes them to pieces on the bank.

Within historic times great changes have taken place in the course of the Hooghly. There is good reason to believe that

the BHĀGĪRATHI represents the old course of the main stream of the Ganges. It is still called the Ganges by the people along its banks and is held sacred. At Tribenī, on the right bank of the Hooghly, 36 miles above Calcutta, is the closed mouth of the old Saraswatī river, which formerly carried the main stream of the Ganges by a channel west of the modern Hooghly, which joined the present river at Sānkrail, 6 miles below Howrah. The course of this dead stream can still be traced by pools and marshes, and it was an important river as late as the fifteenth century. SĀTGAON, the Muhammadan royal port of Bengal, lay upon its bank a short distance inland from Tribenī, and was the traditional mercantile capital of Bengal from the Purānic age to the beginning of the sixteenth century, when the mouth of the Saraswatī had so far silted up that the Portuguese ships could no longer make use of it.

Another important change has taken place below Calcutta. At one time the Hooghly, instead of turning south-west at Calcutta, swung to the south-east near the exit of the present TOLLY'S NULLAH, and found its way into the Bay of Bengal near Sāgar Island. The old course can be traced in a series of pools and dips across the Twenty-four Parganas, which are still known as the Adi (or 'original') Ganges. The prehistoric shrine of Kālī Ghāt and other sacred places of Hinduism mark its course, and its banks still supply holy spots for the burning of the dead. In fact, it is not until the course of the Adi Gangā rejoins the present Hooghly that this river is again recognized as Mother Ganges and resumes its sanctity; and Hindus who die below the point where the Adi Gangā left the Hooghly have for many generations been carried to the Hooghly above that point, or to the old banks of the Adi Gangā itself, for cremation.

The river may be divided into two sections: the first of 64 miles from Sāntipur to Calcutta, and the second of 80 miles from Calcutta to Sāgar Island, where it becomes an estuary.

A serious deterioration in the upper reaches of the Hooghly occurred during the eighteenth century, owing to an alteration in the course of the Dāmodar. This river originally joined the Hooghly at Nayā Sarai, 39 miles above Calcutta, and it brought down a great volume of water to assist in scouring the channel. Gradually, however, its floods worked a larger passage for themselves to the southward, and by 1770 it had forced an exit at its present mouth, 35 miles below Calcutta. The result was that, during the eighteenth century, the Hooghly

above Calcutta deteriorated, and shoals formed which rendered the ancient trading settlements no longer accessible to seagoing ships.

The section of the Hooghly above Calcutta has been famous for 600 years for its entrepôts for sea-going trade. HOOGHLY TOWN was founded by the Portuguese in 1537, after the Saraswatī river silted up and prevented access to Sātgaon. The Portuguese were followed by the Dutch, who established their factory and port at CHINSURA, a mile lower down, in the seventeenth century. Still later, in the middle of the eighteenth century, CHANDERNAGORE, 2 miles below Chinsura, which had been founded in 1673 as a small French settlement, rose to mercantile importance under Dupleix. The Ostend Company about 1723 fixed their Bengal port at Bānkībāzār, 5 miles below Chandernagore, but on the left bank of the river. The Danes in about 1676 had selected as their port SERAMPORE, 8 miles below Chandernagore, on the right bank of the river. All these ports and settlements lie at a distance of from 16 to 36 miles from Calcutta, and are now without exception inaccessible to sea-going ships, even of small tonnage.

The process of silting up was accelerated by the change in the Dāmodar channel above referred to. In 1757 Admiral Watson took his fleet, with his flagship of 64 guns, as high as Chandernagore for the bombardment of that town, and as late as 1821 the English pilots steered Danish ships of 700 to 800 tons up to Serampore. After 1825, however, this section of the river seems to have rapidly deteriorated, and the Dutch and Danish ships could go no higher than Cossipore, just above Calcutta, and were there unladen into cargo boats. Alluvial formations are still going on in the river-bed from Serampore upwards. These formations are in many stages of growth, from the well-raised island with trees, down through successive phases of crop cultivation and reedy marshes, to shoals and little dots of dry land which emerge above the water only at certain seasons of the year. Below Calcutta changes in the channel are frequent and the rapid tides make navigation difficult. Lower down the estuary is notorious for its dangerous sandbanks, of which the best known are the Gasper and the Sāgar sands. These, however, as also the entrance channels, are continually changing, and a minute description of them would serve no useful purpose.

From time to time fears have been entertained with regard to the Hooghly approach to Calcutta; and in 1862 it was proposed to found a new port at PORT CANNING, 28 miles

to the south-east, on the Mātla river, to anticipate the silting up of the Hooghly channels. Trade, however, has clung to the Hooghly. Port Canning proved a failure and has long been deserted; and a later proposal to build docks at Diamond Harbour as an auxiliary port for Calcutta was negatived, and there is no reason to believe that the navigable channels are at present deteriorating. The chief perils to navigation are the JAMES AND MARY SANDS and the Māyāpur bar. The dangerous shoal known as the James and Mary lies between the entrance of the Dāmodar and the Rūpnārāyan, and was early recognized as a danger to navigation. On September 24, 1694, the *Royal James and Mary* was lost on this shoal, to which she gave her name. Banks and shifting quicksands are rapidly formed and the channels have to be continually watched and sounded, for if a vessel touch the sand, she is pushed over by the current; and cases are known in which only the yards of a great three-masted ship have remained above water within half an hour after the accident.

Direct efforts to control the channels across these shoals have not yielded favourable results. In 1868 experiments were conducted on the Māyāpur bar, and spurs were run out some distance below high water-line from both banks of the river; but they were found inadequate to guide the flood and ebb tide into one channel, and no improvement resulted. In 1896 an engineering expert, brought out to consider the feasibility of improving the river, suggested that training walls should be built to regulate the channels across the James and Mary and Māyāpur bars; but his recommendations were not considered practicable. A great deal has, however, been done of late years by the Port Commissioners to reduce the dangers of navigation. A scientific survey staff is employed, and the charts which they issue form a lasting and valuable record of the changes that take place. The James and Mary and the Māyāpur bars are sounded daily, the result being telegraphed to both Calcutta and Diamond Harbour for the information of inward or outward-bound pilots; and the height of the water on the bars is signalled from the bank, from the time vessels enter the river until they pass the last dangerous bar at Māyāpur. Much of the credit of maintaining and improving the Hooghly as a great waterway is due to the Calcutta pilots, one of the most highly skilled and best-paid pilot services in the world. Every incoming vessel is boarded from a pilot brig off the Sandheads at the mouth of the Hooghly, and remains in charge of the pilot till he makes over the ship to the harbour-

master at Garden Reach on the southern limit of the Port of Calcutta. The result is that whereas, in the eighteenth century, ships of even 700 tons usually discharged their cargoes at Diamond Harbour, vessels drawing 28 feet are now piloted in safety up to Calcutta at favourable states of the tide. Great improvements have also been effected in the Port (*see* CALCUTTA). The Port Commissioners maintain a series of shelters or refuges along the east face of the Hooghly estuary and the adjoining Sundarbans, which are supplied with provisions and a few necessary tools for the use of shipwrecked mariners and are regularly inspected. The entrance of the river is protected against attack by forts at Calcutta, Faltā, and Chingri Khāl, which mount heavy guns.

The Hooghly is spanned at Naihāti by a fine cantilever bridge, consisting of two spans of 420 feet projecting from the banks, and a central span of 360 feet resting on piers of great strength in the middle of the river. This bridge links up the East Indian Railway system with the Eastern Bengal State Railway and with the docks at Calcutta. Lower down Howrah is connected with Calcutta by a pontoon bridge, which was opened for traffic in 1874.

The railways have robbed the upper reaches of the Hooghly of much of their boat traffic, but quantities of straw and jute find their way by them to Calcutta. The river is, moreover, connected on its left or eastern bank by various tidal channels and creeks, known as the CALCUTTA AND EASTERN CANALS, with the eastern Districts, and thus forms the great waterway for boat and steamer traffic from Calcutta, through the Twenty-four Parganas and the Sundarbans, to Eastern Bengal and Assam. On the left bank lie Calcutta with its suburbs of GARDEN REACH and COSSIPORE-CHITPUR, and BARRACKPORE, NAIHĀTI, SĀNTIPUR, and NABADWĪP farther up the river. On the right bank HOWRAH is the most important town, followed by Hooghly, Chinsura, Serampore, and the French settlement of Chandernagore.

The scenery on the banks of the Hooghly varies greatly. The sea approach is disappointing, and for many miles nothing can be seen but sandbanks, succeeded by mean-looking mud formations covered with coarse grass and raised only a few inches above high tide. As the river narrows above the James and Mary Sands, however, the country is not so low, and grows richer. Trees and rice-fields and villages become common, and at length a section is reached where the banks are high, and lined with hamlets buried under evergreen groves. The

palm foliage and feathery bamboos now begin to assert themselves more and more strongly, giving a luxuriant tropical type to the landscape. When at length the Port of Calcutta is reached, a scene of unexpected magnificence, unrivalled in its kind, bursts upon the eye. The dense foliage of the Botanical Gardens, the long tiers of shipping, with the old houses of Garden Reach on the margin in the foreground, Fort William rising from the finely timbered plain on the bank higher up, and the domes, steeples, and noble public buildings of Calcutta beyond gradually unfold their beauties in a long panorama. The traveller feels that he is really approaching a City of Palaces.

Barākar.—River of Bengal. Rising on the north face of the central plateau of Chotā Nāgpur in 24° 7′ N. and 85° 18′ E., it flows in a northerly direction as far as the grand trunk road, after crossing which it turns east, and then south-east, until it leaves Hazāribāgh District and enters Mānbhūm. About 32 miles lower down it joins the Dāmodar, on the boundary of Burdwān and Mānbhūm Districts, in 23° 42′ N. and 86° 48′ E. In its course through Mānbhūm District, it recrosses the grand trunk road about 3 miles above the point of junction with the Dāmodar. Though everywhere fordable during the dry season, the Barākar is remarkable for the suddenness with which it rises during the rains, as well as for the strength of its current; and the construction of a bridge across it presents difficulties much more serious than could be inferred from its size. Boat traffic is impossible. The principal tributary is the Khudiā in Mānbhūm.

Dāmodar.—River of Bengal, which rises in the Chotā Nāgpur watershed in 23° 37′ N. and 84° 41′ E., and, after a south-easterly course of about 368 miles, falls into the Hooghly in 22° 17′ N. and 88° 5′ E., just above the ill-famed James and Mary Sands, a shoal which it has helped to form. Its sources are a two-pronged fork, the southern one, the true source, being in the Torī *pargana* of Palāmau District, and the northern one, the Garhi, in the north-west corner of Hazāribāgh. After a course of about 26 miles as wild mountain streams, the two prongs unite just within the western boundary of Hazāribāgh; and the combined river flows through that District almost due east for 93 miles, receiving the Kunur, Jamuniā, and other affluents from the watershed on the north-west. It continues its course still eastward through Mānbhūm District, and receives its chief tributary, the BARĀKAR, also from the north, at the point where it leaves that District and touches

Burdwān. A little lower down the united stream becomes navigable, and assumes the dignity of an important river. At the point of junction with the Barākar the Dāmodar turns to the south-east, separating the Asansol subdivision of Burdwān from Bānkurā District, and then, entering Burdwān District, continues south-east to a little beyond Burdwān town. At Jujoti, 8 miles above Burdwān town, water is supplied to the EDEN CANAL through sluices in the left bank of the river. Soon after leaving Burdwān town, the Dāmodar turns sharply to the right and flows almost due south for the remainder of its course through Burdwān and Hooghly Districts. Shortly before entering the latter it assumes the deltaic type and, instead of receiving affluents, throws off distributaries. The Dāmodar thus exhibits, in its comparatively short course, the two great features of an Indian river. In the earlier part of its career it has a rapid flow, and brings down large quantities of silt. At the point of junction of the two prongs, on the western border of Hazāribāgh District, the united stream starts at an elevation of 1,326 feet above sea-level; but during its course of 93 miles through Hazāribāgh its fall averages 8 feet per mile, and it leaves the District with an elevation of only 582 feet to be distributed over its remaining course of 250 miles. The fall continues rapidly through Mānbhūm and north-western Burdwān, in the latter of which Districts the Dāmodar deposits large and shifting sandbanks. In south Burdwān and Hooghly it loses the greater part of its flood-volume, which finds a way across country to the RŪPNĀRĀYAN river; and it declines into a sluggish deltaic channel, conveying what is left of the remainder of its water and silt to the Hooghly river, which it joins opposite Faltā, 35 miles below Calcutta. The Rūpnārāyan, a southern congener of the Dāmodar from nearly the same watershed, also falls into the Hooghly a few miles lower down. Both streams enter the great river at a sharp angle from the west, and the JAMES AND MARY SANDS have been thrown up between their mouths. During the dry season, the Dāmodar is navigable only as far as Amtā in Howrah District, about 25 miles from its mouth, by native boats of 10 tons burden at neap, and of 20 tons at spring-tides. In the rainy season it is navigable nearly to its junction with the Barākar in the north-western extremity of Burdwān District.

The Dāmodar formerly joined the Hooghly at Nayā Sarai, 39 miles above Calcutta, and its old mouth is still marked by the Kānsonā Khāl; but during the eighteenth century its floods gradually forced a larger passage for themselves to the south-

wards, and in 1770 a flood almost totally destroyed Burdwān town, ruined the whole line of embankments, and caused a severe local famine. The change in the course of the Dāmodar caused a marked deterioration of the upper Hooghly, which its waters had helped to scoop out and to keep clear, and the old trading settlements above Calcutta are now (see the article on the HOOGHLY RIVER) inaccessible to sea-going ships even of small tonnage.

The Dāmodar is subject to sudden freshes which used to desolate the surrounding country in Burdwān District. In 1823 and again in 1855 inundations swept away the riverside villages, and the terror of a similar calamity has deterred the people from building on the deserted sites. The floods of 1823 lasted for three days, during which the fortunate owners of brick tenements camped on their roofs. The old landmarks of the peasants' holdings were swept away, and many years of bankruptcy and litigation ensued. Since the construction of the East Indian Railway, which for a space follows the course of the Dāmodar, and the improvement of the river embankments which Government took over after the flood of 1855, calamities on this scale have been unknown. Both banks of the river were formerly protected by embankments, but these were continually breached by heavy floods, and 20 miles of embankments were removed from the right bank of the river between 1855 and 1859 as impossible of maintenance, and an additional length of 10 miles in 1891. The embankment on the left bank protects an extensive area from floods, which, however, still inundate the unprotected country on the right bank. There has been much discussion about the damage caused by these floods, but the result of recent inquiries tends to show that the cost of preventive measures would be prohibitive. The Dāmodar has been bridged where it is crossed by the Bengal-Nāgpur Railway not far from its junction with the Hooghly, and it is also crossed higher up by the East Indian Railway, and again by the Bengal-Nāgpur Railway.

The Dāmodar is the object on earth most venerated by the Santāls; and the country which is most closely associated with their name, and which they apparently regard as their fatherland, lies between the Dāmodar and the Kāsai. They speak of it as their sea, and the obsequies of their dead are considered incomplete till some charred fragment of the burnt body is committed to the stream, to be borne away to the ocean.

Rūpnārāyan.—River of Bengal, known in the early part of

its course as the Dhalkisor. It rises on the Tilābani hill in Mānbhūm District, and follows a tortuous south-easterly course through the south-west corner of Burdwān District. The Silai joins it on the border of Midnapore District; and from this point (22° 40′ N. and 87° 47′ E.) it takes the name of Rūpnārāyan, and after a farther course of 49 miles, during which it separates Midnapore District from Hooghly and Howrah, it joins the HOOGHLY RIVER in 22° 13′ N. and 88° 3′ E. The Rūpnārāyan proper is tidal throughout its entire course, and a heavy bore ascends as high as the mouth of the GAIGHĀTA BAKSHI KHĀL. The Rūpnārāyan originally formed a western exit of the Ganges. It now enters the Hooghly at right angles opposite Hooghly Point, and when in flood it banks up the stream of the Hooghly and forces that river to deposit its silt upon the dangerous shoal known as the JAMES AND MARY SANDS. It thus constitutes the principal danger to the navigation of the Hooghly. The river is protected on its right bank, within Midnapore District, by a continuous embankment 29½ miles in length; and it is also embanked all along its left bank from its junction with the Gaighāta Bakshi Khāl to its union with the Hooghly. The bordering lands are more or less inundated by the spring-tides in April and May, which leave behind destructive impregnations of salt, rendering them unfit for cultivation unless small defensive works are thrown up round the fields every year to keep the water out. Grass and *hoglā* reeds (*Typha elephantina*) are the ordinary produce, except in years when the rains set in and close early, when a late rice crop can be planted in September. The Rūpnārāyan is navigable throughout the year by native boats of 4 tons burden as high as Ghātāl village in Midnapore District. It is not fordable at any season of the year within the limits of Hooghly and Howrah Districts. It has been spanned by a fine bridge at Kolāghāt, where it is crossed by the Bengal-Nāgpur Railway.

Garai.—The name given to the upper reaches of the MADHUMATĪ river in Bengal and Eastern Bengal, forming one of the principal channels by which the waters of the Ganges are carried to the sea, especially during the monsoon when the comparatively high level of the Brahmaputra prevents an exit by the more eastern channels. At a former period, while the Ganges was still working its way eastwards, the Garai probably formed its main eastern outlet, and during the nineteenth century there seemed a likelihood of the river reverting to this channel. The Garai, which leaves the Ganges near Kushtia in Nadiā District (23° 55′ N. and 89° 9′ E.), flows in a southerly

direction from Ganeshpur to Haripur, about 32 miles; it is 420 yards wide in the rains, and navigable by steamers all the year round. It is spanned by a fine railway bridge of the Eastern Bengal State Railway.

[For an account of the history of this river see Fergusson's 'Some Recent Changes in the Delta of the Ganges,' *Journal of the Geographical Society*, vol. xviii, pp. 321 seq., and Hunter's *Statistical Account of Farīdpur*, pp. 265 seq.]

Madhumatī.—One of the principal distributaries of the GANGES in Bengal and Eastern Bengal, which leaves the parent stream not far from Kushtia, in Nadiā District, in 23° 55′ N. and 89° 9′ E., where it is called the GARAI. Thence flowing south it assumes the name of Madhumatī. It enters Backergunge District near the north-west corner at Gopālganj; and from this point it takes the name of Baleswar, and forms the western boundary of the District, still flowing south, but with great windings in its upper reaches. It then crosses the Sundarbans, separating the Khulnā from the Backergunge portion of that tract, and enters the Bay of Bengal, after a course of 230 miles, in 21° 52′ N. and 89° 59′ E., under the name of Haringhāta, forming a fine deep estuary 9 miles broad. The river is navigable to opposite MORRELGANJ in the District of Khulnā by sea-going ships, and throughout its entire course by native boats of the largest tonnage. Although there is a bar at the mouth of the Haringhāta with only 17 feet of water at low tide, the navigation is easier than that of any other river at the head of the Bay of Bengal. The great banks or shoals, which have formed at each side of the mouth and which extend seaward for several miles, protect the entrance and act as breakwaters to the swell. The river is not disturbed by the 'bore,' which visits the Hooghly and the Meghnā, and it is also free from mid-channel dangers. Among its chief tributaries are the Kacha in Backergunge; the Kālia or Gāngnī river, which receives a portion of the waters of the Nabagangā through the Bankarnali in Jessore; and the BHAIRAB in Khulnā.

Padmā.—The name of the main stream of the GANGES in the lower part of its course between the off-take of the Bhāgīrathi river in 24° 35′ N. and 88° 5′ E. and the south-eastern corner of Dacca District, where it joins the Meghnā in 23° 13′ N. and 90° 33′ E., after a course of 225 miles.

Tīsta.—River of Bengal and Eastern Bengal. It rises beyond the frontier in the Chatāmu Lake, Tibet, in 28° 2′ N. and 88° 44′ E., though it is said to have another source below Kinchinjunga, in Sikkim, and, after traversing North Bengal in

a generally south-east direction, falls into the Brahmaputra in Rangpur District, in 25° 24′ N. and 89° 42′ E. Its length within British territory is about 168 miles. The Sanskrit names for the Tīsta are *Trishnā* and *Trisrota*, the former implying 'thirst,' and the latter 'three springs.' The Kālīka Purāna gives the following account of its origin: The goddess Pārvatī, wife of Siva, was fighting with a demon (Asur), whose crime was that he would worship her husband and not herself. The monster, becoming thirsty during the combat, prayed to his patron deity for drink; and in consequence Siva caused the Tīsta river to flow from the breast of the goddess in three streams, and thus it has ever since continued to flow.

After draining Sikkim, the Tīsta forms the boundary between that State and Darjeeling District for some distance, till it receives the waters of the Great Rangīt, when it turns to the south, and, threading its way through the mountains of Darjeeling, finally debouches on the plains through a gorge known as the Sivok Golā Pass. In Darjeeling the principal tributaries of the Tīsta are: on its left bank, the Rangpo and the Rillī; and on its right, the Great Rangīt, the Rangjo, the Rayeng, and the Sivok. The Tīsta in this portion of its course is a deep mountain torrent not fordable at any time of the year. In the dry season its waters are sea-green, but after rain the admixture of calcareous detritus gives them a milky hue. The scenery along the river banks is here grand and beautiful. The lower slopes of the mountains are clothed with dense forest overhanging its waters, which now gurgle in their rocky bed and anon form deep still pools, while in the background rise in tier above tier the great snowy masses of the Himālayas. The Tīsta is not navigable by trading boats in its course through the hills, although canoes, roughly cut from the *sāl* timber on its banks, have been taken down the river from a point some 8 miles above the plains. Where it enters the plains it has a width of 700 or 800 yards, and becomes navigable by boats of 2 tons burden; but for some distance navigation is very difficult and precarious, owing to the rapids and the numerous rocks and boulders in the bed of the river.

After a short course through the Darjeeling *tarai* the Tīsta passes into Jalpaigurī District at its north-western corner, and, flowing in a south-easterly direction, forms the boundary between the Western Duārs and the permanently settled portion of that District. Here its principal tributaries, all on the left or east bank, are the Lisu or Lish, the Ghish, and the Sāldānga. The Tīsta then traverses a small portion of the

western extremity of the Cooch Behār State, and flows across Rangpur District to join the Brahmaputra. In this District it receives numerous small tributary streams from the north-west and throws off many offshoots of more or less importance, the largest being the Ghāghāt, which probably marks an old bed of the main river. Another branch is the Manās, which rejoins the parent stream after a winding course of about 25 miles. In the lower part of its course the Tīsta has a fine channel, from 600 to 800 yards wide, with a large volume of water at all times of the year and a rapid current. Although it is capable of floating large trading boats of between 3 and 4 tons burden at all seasons, navigation becomes difficult in the cold season, owing to the shoals and quicksands which form at its junction with the Brahmaputra, and the small islands and sandbanks thrown up by the current. The lower reaches, from Kāpāsia to Nalganj Hāt, are called the Pāgla ('mad') river, owing to the frequent and violent changes in its course. Old channels abound, such as the Chotā ('small'), Burhī ('old'), and Marā ('dead') Tīsta, each of which must at one time have formed the main channel of the river, but which are now deserted and navigable only in the rains.

At the time of Major Rennell's survey (towards the close of the eighteenth century) the main stream of the Tīsta flowed south down the bed of the Karatoyā, instead of south-east as at present, and, joining the Atrai in Dinājpur, finally fell into the Ganges. But in the destructive floods of 1787, which form an epoch in the history of Rangpur, the main stream, swelled by incessant rains, suddenly forsook its channel and forced its way into the Ghāghāt. This latter river was unable to carry off such a vast accession to its waters; and the Tīsta spread itself over the District, causing widespread destruction to life and property, till it succeeded in cutting for itself a new and capacious channel by which it found its way to the Brahmaputra. In the early part of the nineteenth century the river again altered its course, forsaking a westward loop about 40 miles in length for a more direct course eastwards. It has since adhered to the course then formed, but with numerous encroachments on its banks, which have left in the west of Rangpur District a maze of old watercourses and stagnant marshes. These render it almost impossible to trace the former course of these rivers, and have caused at the same time great confusion in their nomenclature. In parts of its course the Karatoyā is still known as the Burhī ('old') Tīsta, and its broad sandy channel in many places indicates

the route followed by the Tīsta according to Major Rennell's survey.

Subarnarekhā ('the streak of gold').—River of Bengal. Rising in Rānchī District, 10 miles south-west of Rānchī town, in 23° 18′ N. and 85° 11′ E., it flows towards the north-east, leaving the Chotā Nāgpur plateau in a picturesque waterfall called Hundrughāgh. From this point it forms the boundary with Hazāribāgh District, its course being eastwards to the tri-junction point with Mānbhūm District. From this point the river bends southwards into Singhbhūm, then passes into the State of Mayūrbhanj, and afterwards enters Midnapore District from the north-west. It traverses the jungle in the western tract of this District till it reaches Balasore, through which it flows in a tortuous southern channel, with gigantic windings east and west, until it finally falls into the Bay of Bengal, in 21° 34′ N. and 87° 21′ E., after a course of 296 miles, having drained an area of 11,300 square miles. The chief tributaries of the Subarnarekhā in Chotā Nāgpur are the Kānchī and Karkārī, both joining it from the west. The river is navigable by country craft for about 16 miles from its mouth, up to which point it is also tidal, and the bed is studded with islands. During the rains rice boats of 2 tons burden make their way into Mayūrbhanj. The bordering country is cultivated to within a few miles of the sea in the cold season. The Subarnarekhā is fordable only at places within Balasore District; it is embanked here in its lower reaches.

Baitaranī.—River of Bengal. Rising among the hills in the north-west of Keonjhar State, Orissa, in 21° 28′ N. and 85° 33′ E., it flows first in a south-westerly and then in an easterly direction, forming successively the boundary between Keonjhar and Mayūrbhanj States, between Keonjhar and the District of Cuttack, and between Cuttack and Balasore. In the latter District the BRĀHMANĪ joins it in 20° 45′ N. and 86° 49′ E., after the Baitaranī has had a course of 224 miles, and the united stream falls, under the name of the DHĀMRA, into the Bay of Bengal. The river is navigable as high as Olokh, 15 miles from its mouth; beyond this point it is not affected by the tide, and is fordable during the hot season. This river is the Styx of Hindu mythology; and a legend has it that Rāma, when marching to Ceylon to rescue his wife Sītā from the ten-headed demon Rāvana, halted on its banks on the borders of Keonjhar. In commemoration of this event large numbers of pilgrims visit the river every January. The chief tributaries are the Sālandī and Matai in Balasore District.

The principal places on the banks are Anandapur in Keonjhar State, and Olokh and CHĀNDBĀLI in Balasore District. The river is crossed by the Orissa High-level Canal, which derives from it a portion of its water-supply.

Brāhmanī.—River of Bengal, formed by the junction of the South Koel and Sānkh rivers in Gāngpur State, Orissa, in 22° 15′ N. and 84° 47′ E. The united stream, assuming the name of Brāhmanī, passes through the Orissa Tributary States of Bonai, Tālcher, and Dhenkānāl, and enters Cuttack District near Garh Balarāmpur. It then follows a very winding easterly course, and reaches the Bay of Bengal by two mouths, the Dhāmra estuary and the Maipāra river, in 20° 47′ N. and 86° 58′ E., after a length of 260 miles. The principal branch of the Brāhmanī is the Kimiriā, which takes off on its right bank opposite Rājendrapur village in Cuttack District, and, after mixing its waters with the Gengutī, Kelo, and Birūpā (the last an offshoot of the Mahānadī), falls again into the parent stream at Indpur under the name of the Birūpā. As it approaches the sea the Brāhmanī receives on its left bank the Kharsuā, and a short distance below this point its waters unite with those of the BAITARANĪ, forming the DHĀMRA. The confluence of the South Koel and the Sānkh, which marks the point of origin of the Brāhmanī, is the prettiest spot in Gāngpur State, and is said by local tradition to be the scene of the amour of the sage Parāsara with the fisherman's daughter Matsya Gandhā, who became the mother of Vyāsa, the reputed compiler of the Vedas and the Mahābhārata. The Brāhmanī is crossed by the Orissa High-level Canal, which derives from it a portion of its water-supply, and is spanned by a fine bridge on the Bengal-Nāgpur Railway.

Dhāmra.—River and estuary in Bengal, formed by the BRĀHMANĪ and BAITARANĪ and their tributaries, which meet in 20° 45′ N. and 86° 49′ E., and enter the Bay of Bengal in 20° 47′ N. and 86° 58′ E. The Dhāmra is navigable, but is rendered dangerous by a bar across its mouth. It forms the boundary between the Districts of Cuttack and Balasore, but its waters lie within the jurisdiction of Balasore.

Mahānadī ('the great river').—A large river in the Central Provinces and Bengal, with a total course of 550 miles, about half of which lies within the Central Provinces. The drainage area of the Mahānadī is estimated at 43,800 square miles, of which about 27,000 square miles are in the Central Provinces. Owing to the rapidity of its current, its maximum discharge in flood time near its mouth is calculated to be nearly 2 million

cubic feet a second, or as great as that of the Ganges; in the dry season, however, the discharge dwindles to 1,125 cubic feet a second, while the least discharge of the Ganges is 45,000 cubic feet. During eight months of the year the river is nothing more than a narrow and shallow channel winding through a vast expanse of sand.

The Mahānadī rises in an insignificant pool, a few miles from Sihāwa in the extreme south-east of Raipur District (20° 9′ N. and 81° 58′ E.). In the first part of its course it flows to the north, and drains the eastern portion of Raipur, its valley during the first 50 miles being not more than 500 or 600 yards broad. A little above Seorīnārāyan, on entering Bilāspur District, it receives the waters of its first great affluent the Seonāth, which in Raipur District is a more important river than the Mahānadī itself. It flows in an easterly direction through Bilāspur, its principal tributaries being the Jonk and Hasdo. It then enters Sambalpur, and turning south at the town of Padampur flows south and south-east through that District. Its affluents here are the Ib, Ong, and Tel, and numerous minor streams. In Sambalpur it has already become a river of the first magnitude with a width of more than a mile in flood time, when it pours down a sheet of muddy water overflowing its submerged banks, carrying with it the boughs and trunks of trees, and occasionally the corpses of men and animals which it has swept away. From Sambalpur a magnificent view is obtained for several miles up and down the river, the breadth being almost doubled at the centre of a large curve below the town. The Mahānadī subsequently forms the northern boundary of the State of Baud in Orissa, and forces its tortuous way through the Orissa Tributary States, between ridges and ledges, in a series of rapids, until it reaches Dholpur. Boats shoot these rapids at a great pace, and on their return journey are towed up from the bank with immense labour. During the rainy season the water covers the rocks and suffices to float down huge rafts of timber. At Dholpur the rapids end, and the river rolls its unrestrained waters straight towards the outermost line of the Eastern Ghāts. This mountain line is pierced by a gorge 40 miles in length, overlooked by hills and shaded by forests on either side. The Mahānadī finally leaves the Tributary States, and pours down upon the Orissa delta from between two hills a mile apart at Narāj, about 7 miles west of the city of Cuttack. It traverses Cuttack District from west to east, and throwing off numerous branches falls into the Bay of Bengal, by several channels, near FALSE POINT, in 20° 18′ N. and 86° 43′ E.

On the right or south bank, soon after entering Cuttack District, it gives off a large stream, the Kātjurī, the city of Cuttack being built upon the spit which separates the two channels. The Kātjurī immediately divides into two, of which the southern branch, under the name of the Koyākhai, passes into Purī District, and shortly afterwards throws off the Suruā, which reunites with the parent stream after a course of a few miles. A little lower down the Kātjurī throws off two minor distributaries from its right bank, the Great and Little Devī, which unite after a southerly course of about 20 miles; and, under the name of the Devī, the combined stream passes into Purī District, and falls into the Bay of Bengal a few miles below the southern boundary of Cuttack. The Kātjurī ultimately falls into the Bay of Bengal under the name of the Jotdār. The other important southern distributary of the Mahānadī is the Paikā, which branches off from the parent stream 10 miles below Cuttack city, and rejoins it after a course of about 12 miles. It again branches off from the northern bank, and running in a loop finally joins the Mahānadī at Tikri, opposite Tāldanda. The offshoots from the left or north bank of the Mahānadī are the Birūpā and the Chitartala. The Birūpā takes off opposite the city of Cuttack, and, after flowing in a north-easterly direction for about 15 miles, throws off the Gengutī from its left bank. This stream, after receiving the waters of the Kelo, again falls into the Birūpā. The latter river afterwards joins the BRĀHMANĪ, and its waters ultimately find their way into the Bay of Bengal by the DHĀMRA estuary. The Chitartala branch leaves the parent stream about 10 miles below the Birūpā mouth, and soon bifurcates into the Chitartala and the Nūn. These streams unite, after a course of about 20 miles, and, under the name of the Nūn, the united waters fall into the Mahānadī estuary a few miles from the coast, and so into the Bay of Bengal.

In the upper parts of its course the bed of the Mahānadī is open and sandy, with banks usually low, bare, and unattractive. After entering Sambalpur its course is broken in several places by rocks through which the river forms rapids, dangerous to navigation. Boats can, however, ascend the Mahānadī from its mouth as far as Arang in Raipur District, about 120 miles from its source. Before the construction of the Bengal-Nāgpur Railway the Mahānadī was the main outlet for the produce of Sambalpur District, which was carried in boats to Cuttack, salt, cloth, and other commodities being brought back in exchange. The through traffic has now, however, been superseded by the

railway, and there remains only a small amount of local trade between Sambalpur and Sonpur.

No use has hitherto been made of the waters of the Mahānadī for irrigation in the Central Provinces, but a project for a canal in Raipur District is under consideration. Efforts have been made to husband and utilize the vast water-supply thrown down on the Orissa delta; and an elaborate system of canals, known as the ORISSA CANALS, has been constructed to regulate the water-supply for irrigation, and to utilize it for navigation and commerce. Large sums have also been spent in embankments to protect the delta from inundation by the floods which pour down the Mahānadī and its distributaries. A pontoon bridge is constructed across it in the dry season at Sambalpur, and the Bengal-Nāgpur Railway crosses by a girder-bridge at Cuttack.

Tribenī Canal.—A protective work now under construction in Champāran District, Bengal. The sanctioned estimate provides for 61 miles of main canal, with 250 miles of distributaries. The canal will derive its supply from the GANDAK river and will run eastwards along the northern boundary of the District, serving an area of about 450 square miles; it is expected eventually to irrigate 125 square miles of rice and 47 square miles of *rabi* crops. The estimated cost, including indirect charges, is 51½ lakhs.

Tiar Canal.—A small protective canal in CHAMPĀRAN DISTRICT, Bengal, usually known as the Madhuban Canal.

Son Canals.—A system of irrigation works in the Districts of Shāhābād, Gayā, and Patna, Bengal, which derive their supply from an anicut across the Son river at Dehrī. The idea of using the waters of the Son for irrigation originated about fifty years ago with the late Colonel C. H. Dickens, and for many years the subject was under discussion. The project was undertaken by the East India Irrigation and Canal Company, but was handed back to Government in 1868, and work was not actually commenced until the following year. Sufficient progress had been made in 1873 to allow of water being supplied through cuts in the banks of the Arrah canal to relieve the drought of that year, and the canals were completed a few years later. They carry a maximum volume of 6,350 cubic feet per second. About 80 per cent. of the irrigation lies in Shāhābād, 11 per cent. in Gayā, and 9 per cent. in Patna District.

The general plan of the works comprises the Dehrī anicut, a main western canal branching off above the anicut on the

left bank, and a main eastern canal branching off on the right. The anicut, or weir, which is 12,500 feet in one undivided length, and is, consequently, one of the longest weirs in existence, consists of a mass of uncemented rubble stone, with two core walls of masonry founded on shallow wells. The work was greatly facilitated by the presence of excellent building stone a few miles from the site. Scouring sluices were provided at each flank and at the centre. Those at the centre have since been filled up. The flank sluices serve to maintain clear channels in front of the canal head sluices, and they facilitate the regulation of the height of the water in the pool above the weir. The vents are operated by means of shutters 20 feet 6 inches in length, on a system devised by the late Mr. C. Fouracres, by which the shock of the up-stream shutter when rising is taken by hydraulic tubular struts. The system has worked well, and there is a very complete control of the river even when it is in moderate flood. The total cost of the anicut, which was finished in 1875, amounted to about 15 lakhs.

The total length of the main canals is 218 miles, of the branch canals 149 miles, and of the distributaries 1,217 miles. The western main canal supplies the Arrah, the Buxar, and the Chausā canals, which all branch off within the first 12 miles. The main canal is continued for a total distance of 22 miles, as far as the grand trunk road, 2 miles beyond Sasarām. Its prolongation for a farther distance of 50 miles to the frontier of the District, towards Mirzāpur, was commenced as a relief work during the scarcity of 1874–5, but never completed. The chief engineering work is the siphon-aqueduct of twenty-five arches, by which a formidable hill-torrent, called the Kao, is carried under the canal. The Arrah canal branches off at the fifth mile, and follows the course of the Son for 30 miles, when it strikes northwards, running on a natural ridge past the town of Arrah, and finally falls into a branch of the Ganges after a total course of 60 miles. It is designed for navigation as well as irrigation, but no permanent communication has been opened with the main stream of the Ganges. To allow for a total fall of 180 feet, 13 locks have been constructed. Besides four principal distributaries, the main offshoots are the Bihiyā canal, 30 miles long, and the Dumraon canal, 40 miles. The Buxar canal leaves the main western canal at its twelfth mile, and communicates with the Ganges at Buxar, after a course of 55 miles; it also is intended for navigation. The total fall is 159 feet, which is facilitated by twelve locks. Gayā and Patna

Districts are served to a smaller extent by the eastern main canal, which was originally intended to run as far as Monghyr, but at present stops short at the Pūnpūn river, a total length of only 8 miles. The Patna canal leaves the main canal at the fourth mile, and follows the course of the Son till it joins the Ganges at Dīgha, between Bankipore and Dinapore. Its total length is 79 miles, of which 43 miles lie within the District of Gayā and 36 in Patna.

The area irrigated in 1903-4 was 790 square miles. In 1902-3 the net revenue was 8·74 lakhs, giving a return of 3·27 per cent. on the capital expenditure; while in 1903-4 the receipts amounted to 13·24 lakhs and the working expenses to 5·38 lakhs. The capital outlay up to March 31, 1904, was 267 lakhs. The main canals are navigable, and the estimated value of cargo carried in 1902-3 was 10·2 lakhs; Rs. 19,000 was realized as navigation tolls in that year and Rs. 23,000 in 1903-4.

Eden Canal.—An irrigation canal in the Burdwān and Hooghly Districts of Bengal, named after a former Lieutenant-Governor of that Province. Its supply is derived from the Dāmodar river, and to a small extent also from the Banka nullah. The main canal has a length of 27 miles, with 18 miles of distributaries; natural channels which are private property are also used to convey the water. The construction of the canal was commenced in 1873, but proceeded fitfully, and it was not opened till 1881. There is no navigation, the canal having been constructed primarily as a sanitary work to pour a supply of fresh water into old river-beds. The water is, however, of value for irrigation in dry years; and in 1902-3 the area under long lease for irrigation was 43 square miles, while the area actually irrigated in 1903-4 was 44½ square miles. No capital account is kept, but the cost of construction has been 7·8 lakhs. The gross receipts in 1903-4 were Rs. 31,000, and there was a loss on the year's working of Rs. 13,000.

Gaighāta Bakshi Khāl.—An improved natural waterway, 7½ miles in length, forming a connecting link between the Dāmodar and Rūpnārāyan rivers in the Howrah District of Bengal. The channel was taken over by the Irrigation department from the District board of Howrah in 1894, and no capital account is kept. The right of collecting tolls was leased out for the five years ending March, 1901, at an annual rental of Rs. 4,500, and the lease has since been renewed for another five years on the same terms. The

expenditure in 1903-4 amounted to Rs. 538 and the receipts to Rs. 2,300.

Calcutta and Eastern Canals.—A system of navigable channels in the Twenty-four Parganas, Khulnā, Backergunge, and Farīdpur Districts of Bengal and Eastern Bengal, extending over a total length of 1,127 miles, of which about 47 miles, including Tolly's Nullah, are artificial canals, and the remainder are natural channels, mainly tidal creeks in the SUNDARBANS. These stretch eastwards from the Hooghly across the Ganges delta and afford means of intercommunication between the mouths of the latter river. The channels are under the supervision and control of Government, and tolls are charged on vessels using the artificial canals.

This is one of the most important systems of river canals in the world, judged by the volume of the traffic, which averages about 1,000,000 tons per annum, valued at nearly four millions sterling. The situation of Calcutta makes it the natural outlet for the Ganges valley; and this position has been enormously strengthened by the construction of railways, but other measures were necessary to enable it to tap the trade of the Brahmaputra valley and to focus the rich traffic of the eastern Districts. The intermediate country is a maze of tidal creeks, for the most part running north and south but connected here and there by cross-channels, wide near the sea-face but narrow and tortuous farther inland. These inland channels are constantly shifting as the deposit of silt raises their beds, while on the other hand the great estuaries near the sea-face are not navigable by country boats from June to October, owing to the strong sea-breezes which prevail during the south-west monsoon. This system of canals was devised, therefore, in order to allow country boats to pass from the eastern Districts to Calcutta by a direct inland route, and the problem has been to keep the natural cross-channels clear of silt, and to connect them with each other and with Calcutta by a system of artificial canals. The channels have been in use for many years; and it is along them that the rice, jute, and oilseeds of East and North Bengal, the tea of Assam and Cāchār, and the jungle produce of the Sundarbans pour into Calcutta, while they also carry the exports of salt, piece-goods, and kerosene oil from Calcutta to those Districts.

Before the opening of TOLLY'S NULLAH, boats could approach Calcutta only by a route close to the sea-face which brought them into the Hooghly by the Bārātala creek, 70 miles below Calcutta; and this route was not only circuitous but was

impracticable for country boats during the rainy season. The pioneer of the system was Major Tolly, who in 1777 canalized an old bed of the Ganges, from its confluence with the Hooghly at Hastings, a little south of Fort William in Calcutta, south-eastwards to Gariyā (8 miles). From this point the canal (known as Tolly's Nullah) was carried east to meet the Bidyādharī river at Sāmukpotā, and thus gave access to an inner route which leads eastwards from Port Canning. In 1810 a further step was taken to facilitate access to Calcutta. An old channel through the SALT WATER LAKES, east of the city, was improved and led westwards by what is now known as the Beliāghāta canal in the neighbourhood of Sealdah. Between 1826 and 1831 a new route was opened between Calcutta and the Jamunā river, following the same direct easterly course as the present Bhāngar canal, the object being to relieve the pressure on Tolly's Nullah; a number of tidal channels were utilized and connected by six cuts to form a continuous eastward route. The next step was to cut the Circular canal from Chitpur, parallel with the Circular Road, to meet the old Eastern canal at Beliāghāta, and this was completed in 1831. These canals were still choked by the increasing stream of traffic; and, in order to relieve them, the New Cut was opened in 1859, leading from Ultādānga, a point on the Circular canal 3 miles east of Chitpur, south-east to Dhāpa on the Beliāghāta canal. Finally the Bhāngar channel was canalized in 1899 for a length of 15 miles, thus completing the inner channel which had been commenced in 1831.

The objective of this system is Barisāl, the head-quarters of the great rice-growing District of Backergunge, situated 187 miles east of Calcutta. There are three alternative routes to Barisāl. The one generally followed is along the Bhāngar canal and Sibsā river to Khulnā, and thence by the Bhairab river to Pirojpur and Barisāl. An alternative route between Calcutta and Kālīganj on the Ichāmatī river follows Tolly's Nullah and the Bidyādharī river to Port Canning, and then strikes north-eastward. This is called the Outer route, and two similar alternative routes branch off southwards in Khulnā District. The main steamer route follows the Hooghly river as far as the Bārātala creek, and then turns east and north-east, meeting the two routes previously described at Pirojpur.

Included in this system is an important channel, known as the Mādarīpur Bīl route, which connects the Kumār and Madhumatī rivers, and is used by jute-laden steamers during the rains; it shortens the journey between Khulnā and

Mādārīpur by 89 miles. The construction of this route was commenced in 1900, and has since been completed. The channel is being deepened and widened for the purpose of allowing steamers and flats drawing 6 feet of water to use the route during the jute season; and the question of still further improving it, so as to make it navigable throughout the year, is under consideration. The net revenue of these canals in 1902-3 was 1·4 lakhs, being 2 per cent. on the capital outlay, and the estimated value of cargo carried during the year was 497 lakhs. In 1903-4 the receipts amounted to 4 lakhs and the net revenue was 1·3 lakhs; while the total capital outlay up to March 31, 1904, was 77·1 lakhs.

Tolly's Nullah.—Canal in the District of the Twenty-four Parganas, Bengal, forming part of the CALCUTTA AND EASTERN CANALS system. It is 18 miles in length, and extends from Kidderpore to Tārdaha, connecting the Hooghly with the Bidyādharī river. It was originally excavated in 1776 by Major Tolly as a private venture, under a temporary grant of land and of canal tolls, and was opened for navigation in 1777; it was taken over by Government in 1804. As at first excavated, the canal was of insignificant dimensions; but it has since been widened, and is now a much-frequented passage (forming part of the Inner Sundarbans route), and a source of considerable revenue to Government. The original course of the Hooghly was identical with the present Tolly's Nullah as far as Gariyā, 8 miles south of Calcutta, and this part of the canal is still called Adi Gangā, or the 'original' Ganges.

Hijilī Tidal Canal.—Navigable canal in Midnapore District, Bengal, with a length of 29 miles, extending from Geonkhāli at the junction of the Rūpnārāyan and Hooghly rivers to the Rasūlpur river, whence the ORISSA COAST CANAL forms a continuation to the south-west. It is divided into two ranges by the Haldī river, and was commenced in 1868 and completed in 1873. The estimated value of goods carried in 1902-3 was 39·2 lakhs, and the net revenue was Rs. 5,000, representing a return of 0·2 per cent. on the capital expenditure. In 1903-4 the total receipts amounted to Rs. 42,000 and there was a net revenue of Rs. 17,000; while the capital account stood at 26·15 lakhs on March 31, 1904.

Midnapore Canal.—A navigable and irrigation canal in the Midnapore District of Bengal. Construction was begun by the East India Irrigation and Canal Company in 1886; the works were taken over by Government two years later,

and irrigation commenced in 1871. The canal originally formed part of the ORISSA CANALS scheme, but was at an early stage separated and treated as a distinct project. The water-supply is derived from the Kāsai river at Midnapore, where there is a regulating weir with head-works, and the canal extends to Ulubāria on the Hooghly, crossing the Rūpnārāyan and Dāmodar rivers.

The length of the main canal is 72 miles, and of its distributaries 267 miles, and the maximum discharge is 1,500 cubic feet per second. The entire length of the main canal is navigable, and the estimated value of cargo carried in 1902-3 was 63·8 lakhs, the tolls collected amounting to Rs. 70,000. The capital outlay up to March 31, 1904, was 84·8 lakhs, and the gross revenue for the year 1903-4 amounted to 2·2 lakhs, the net revenue being Rs. 70,000; the total area irrigated was 146 square miles. Before the opening of the Bengal-Nāgpur Railway the canal formed part of the main route between Calcutta and Midnapore; the railway has tapped the canal traffic and caused a falling off in the receipts from navigation, which has been accompanied, however, by a corresponding decrease in working expenses.

Orissa Coast Canal.—A navigable canal situated chiefly in Balasore District, but partly also in Midnapore District, Bengal, forming a continuation of the HIJILĪ TIDAL CANAL. The canal, which has a total length of 130 miles, connects the Rasūlpur river with the Subarnarekhā, and proceeds thence to the Matai and Dhāmra rivers. The canal was commenced in 1880, and opened for traffic in 1885. The estimated value of cargo carried in 1902-3 was 19·4 lakhs. There has been a great falling off in the navigation receipts since the opening of the Bengal-Nāgpur Railway, to which most of the rice and other goods traffic has been diverted. The capital outlay up to March 31, 1904, was 44·8 lakhs; the gross revenue for the year 1903-4 was Rs. 34,000, and there was a loss on the year's working of Rs. 32,000.

Orissa Canals.—A system of canals situated chiefly in Cuttack District, Bengal, but serving also a portion of Balasore District. The canals derive their supply mainly from the MAHĀNADĪ river, but partly also from the BRĀHMANĪ and BAITARANĪ. The first proposal to employ the rivers of Orissa and Midnapore for irrigation was made by General Sir Arthur Cotton, who was deputed to visit Bengal in 1858 to advise on the control of the flood-waters of the Mahānadī. He recommended the construction of a complete system of irrigation

and navigation canals, following the principles then being carried out in the deltas of the Godāvari and Kistna. He estimated that an area of 3,516 square miles might thus be irrigated, and that navigation might be opened up between Orissa, Midnapore, and Calcutta, for a sum of 130 lakhs. Here, as elsewhere, Sir Arthur Cotton attached special importance to making the canals navigable; and he pointed out how completely Orissa was cut off from the rest of India, without roads, railways, or harbours, and traversed by a succession of formidable and unbridged rivers. In 1860 the East India Irrigation and Canal Company was formed for the purpose of carrying out the works in Orissa, and water was first supplied for irrigation in 1865. The works, however, were not sufficiently advanced to be of any real use in the terrible famine of 1866, though they supplied an excellent form of relief labour in the distressed Districts. Before this it had become evident that the original estimate would be largely exceeded; and as the company found difficulty in raising further funds, the Government of India purchased the whole of the works for the sum of 109 lakhs, and in 1869 the company ceased to exist.

From the first, irrigation in Orissa made very slow progress. Those who had enthusiastically quoted the success of the Madras irrigation schemes seem to have forgotten that there the annual rainfall does not exceed 40 inches, while in Orissa it amounts to 60 inches. The works, however, proceeded; and in 1873 it was decided to provide for an irrigable area of 1,781 square miles in Orissa (exclusive of Midnapore), at an estimated cost of 441 lakhs. This area was to include 781 square miles in the Balasore and Purī sections of the scheme, which had not then been put in hand and were soon after abandoned. The works completed up to 1902–3 commanded a cultivable area of 900 square miles, the maximum discharge of the canals being 6,058 cubic feet per second; and 22 miles of distributaries and minor channels were added to the system in 1903–4. They consist of seven weirs across river channels with an aggregate length of 3½ miles, constituting, with the canal head-sluices and entrance locks, the most extensive system of head-works of any canal system in India. There are four canals, with their respective distributaries: namely, the High-level canal; the Kendrāpāra canal, with its extensions, the Gobri and Patāmundai canals; the Tāldanda canal; and the Māchgaon canal.

The High-level canal was designed to provide a navigable

trade route between Cuttack and Calcutta, and also to irrigate the country through which it passes. It starts from above the left flank of the weir across the Birūpā, one mile below the departure of that river from the main stream of the Mahānadī, and runs thence along the foot of the hills north-eastwards, through Cuttack and Balasore Districts. The original scheme was to carry the canal across the District of Midnapore to meet the Hooghly river at Ulubāria, below Calcutta, a total distance from the starting-point of 230 miles. The section between Midnapore town and Ulubāria was opened throughout for traffic in 1873; but this is known as the MIDNAPORE CANAL, and forms an independent work distinct from the Orissa Canals system.

The Orissa delta is divided by the rivers which traverse it into two main sections. The tract between the main stream of the Mahānadī and the Brāhmanī is irrigated by the Patāmundai canal on the north and the Kendrāpāra canal on the south, the Gobri canal forming a connecting link between them to the east. Both these systems draw their supply of water from the south flank of the anicut across the Birūpā, which also feeds the High-level canal. Another anicut across the main stream of the Mahānadī feeds the Tāldanda and Māchgaon canals, which water the north and south edges of the tract between the Mahānadī and the Kātjurī. All these canals maintain a high level along the banks of the rivers, which are always above the intermediate alluvial tracts.

Canal-irrigation was first ready in 1865; but cultivators were slow to avail themselves of it, as they were afraid that irrigation would be made an excuse for the enhancement of rents and revenue. More than one proclamation was published to allay their apprehensions, but a more effective inducement to take water was the gradual reduction of the rate from Rs. 5 and Rs. 3 to Rs. 1-8 per acre. The rainfall is generally sufficient to bring the crops to maturity, though it fails occasionally, so that artificial irrigation is necessary only in exceptionally dry years. The policy adopted has been to induce the cultivators to take long leases on favourable terms; and this is proving successful, the area irrigated having steadily increased, until in 1903–4 it reached 328 square miles. There were in that year altogether 205 miles of main canals for irrigation and navigation, 96 miles of canals for irrigation only, and 1,166 miles of distributaries and minor channels. The main canals are navigable, and the estimated value of cargo carried in 1902–3 was 63 lakhs, the tolls realized aggregating

Rs. 69,000. The capital outlay up to March 31, 1904, was 265 lakhs, and in 1903-4 the gross revenue was 4·3 lakhs and the net revenue Rs. 45,000.

The Orissa Canals have never paid their way. The water rate was until recently only Rs. 1-8 per acre, and the receipts for both navigation and irrigation barely cover the working charges and do not touch the interest, the annual charges for which exceed 10 lakhs. The water rate has recently been increased to Rs. 1-12 per acre, with the object of rendering the canals self-supporting, and the receipts rose from 3·5 lakhs in 1901-2 to 4·3 lakhs in 1903-4. During the same period the traffic on the canals increased, though owing to the reduction of tollage rates the actual earnings were not greater.

Bhuiyā (or Bhuinhār).—An aboriginal tribe of Bengal, numbering in 1901 nearly two-thirds of a million, most of whom were found in the Chotā Nāgpur plateau, the Santāl Parganas alone containing 119,000. The word Bhuiyā is a Sanskrit derivative, and in some parts of Bengal it is merely a titular designation adopted by various castes. In some places, on the other hand, it is unequivocally recognized as a tribal designation; and it is a plausible conjecture that the tribal Bhuiyās properly so called came originally from the Tributary States of Orissa and Chotā Nāgpur, where the organization of the tribe is at the present day more complete than elsewhere. They seem to have been displaced in Singhbhūm by the Hos, in Rānchī by the Mundās and Oraons, and in Mānbhūm by the Bhumijs; but in Hazāribāgh the tribe again gathers strength, and in South Bihār we meet with them in large numbers bearing the opprobrious name of Musahar or 'rat-eater,' but invariably calling themselves by their original tribal designation. The physical characteristics and the traditions of the Bhuiyās vary considerably in different places; but they all affect great reverence for the memory of Rikhmun or Rikhiasan, whom they regard, some as a patron deity, and others as a mythical ancestor, whose name distinguishes one of the divisions of the tribe. It seems probable that in the earliest stage of belief Rikhmun was the bear-totem of a sept of the tribe, and that later on he was transformed into an ancestral hero, and finally promoted to the rank of a tribal god. However this may be, his cult is peculiar to the Bhuiyās, and serves to link together the scattered branches of the tribe.

Bhumij.—An aboriginal tribe found mainly in the Chotā Nāgpur Division of Bengal and very closely allied to the Mundās, of whom they may perhaps be regarded as an off-

shoot that has lost some of its tribal peculiarities by contact with the people of the plains. The tribe numbered 328,000 in 1901, and a third of them are inhabitants of Mānbhūm, the remainder being distributed over the Orissa Tributary States, Singhbhūm, and Midnapore. Nearly all call themselves Hindus, and in this respect they present a marked contrast to the Mundās, Hos, and Santāls, the majority of whose members are Animists. About a third still speak a form of Mundārī, mainly in Singhbhūm and Midnapore and in the Orissa States; elsewhere Bengali is commonly spoken. The Bhumijs were in former days very turbulent, and under the nickname of *chors* ('robbers') were the terror of the surrounding Districts. The last disturbance occurred in 1832, when a quarrel arose about the succession to the Barābhūm estate, and one Gangā Nārāyan, at the head of a body of Bhumij insurgents, plundered the whole country. The officials and police fell back on Burdwān, and a strong military force had to take the field. Gangā Nārāyan was killed in an attempt to storm the fort of the Thākur of Kharsāwān, and the insurgents then submitted.

Ho.—An aboriginal tribe of the Chotā Nāgpur Division of Bengal, akin to the MUNDĀS, BHUMIJS, and Santāls. The word Ho (Mundārī, *Horo*) means a 'man' in the tribal vernacular, which differs but slightly from Mundārī. The Hos, who numbered 386,000 in 1901, are the characteristic tribe of the KOLHĀN Government estate in Singhbhūm District, which they conquered from the earlier inhabitants and successfully defended against all comers until subdued by the British in the early part of the nineteenth century. Their prowess earned them the sobriquet of the Larkā (or 'fighting') Kols. They are great sportsmen, and every year in May they meet together and beat the jungles for game of all descriptions. Their national weapon is the bow and arrow. The great majority of the tribe are Animists, and, unlike their allied tribes, very few of them have as yet become converts to Christianity. They are an exceedingly exclusive race, and are well off, as they hold their lands on easy terms. The bride-price is absurdly high, varying from 10 to 30 head of cattle, as compared with 3 head with the Mundās. As a consequence, the large number of adult unmarried girls is a peculiar feature in the social state of the community.

Kol.—A generic name applied by Hindus to the MUNDĀ, Ho, and ORAON tribes of Bengal.

Mundā.—An aboriginal tribe of the Chotā Nāgpur Division of Bengal, where they numbered 438,000 in 1901. They are

mainly to be found in Rānchī District, and are closely akin to the Ho, BHUMIJ, and Santāl tribes. The name Mundā is of Sanskrit origin and denotes a 'village headman'; the people call themselves Horo (meaning 'man'). Their physical type is Dravidian, but their language is allied to those spoken by the Ho, Santāl, Bhumij, and other cognate tribes. These dialects form a distinct linguistic family, variously known as Mundā or Kol, the origin of which is one of the most obscure philological problems of the day. It was suggested by Logan that they were evolved from the contact of the southern Dravidian languages with Mon-Anam forms of speech brought to India by Mongolian invaders from the north-east. The majority of the tribe (296,000) are returned as Animists, but there are 85,000 Hindus and 56,000 Christians; conversion to Christianity has recently made rapid progress among this race.

The village community retains its primitive form among the Mundās, and is provided with a complete staff of village officials. The *mundā* is the headman; he is responsible for the rent of the village, which he collects and pays to the *mānki* or head of a group of villages, where there is one, or to the landlord. The *mahto* is an accountant, the *pahn* a priest, the *bhandāri* the landlord's agent, and the *gorait* a watchman. These officials are remunerated by grants of land held rent-free or at privileged rents, or by payments in grain or in cash, as are also the *ahīr* or cowherd, and the *lohār* or blacksmith. The system prevails in its entirety in the tract of Rānchī District which borders on Singhbhūm and is known as the *mānki-patti*. Here many of the *mānkis* and *mundās* are the descendants of the original chiefs, and still hold the villages which their ancestors founded. These villages are cultivated by the descendants of the original reclaimers, and each family is responsible for the payment of a fixed quota of the village rent. For many years past the landlords have been endeavouring to break down the prescriptive rights of these people, which they are most tenacious in asserting, and the discontent thus engendered culminated in the Mundā rising of 1899. This outbreak was speedily suppressed; but, in order to remove the grievances complained of, the Mundā tract is being surveyed and settled, and an Act has been passed by the Bengal Government to protect the rights of these village communities.

In the early part of the last century the Mundās gave a great deal of trouble. There were outbreaks in 1811 and in 1820; and in 1831 a serious insurrection took place, caused by the

lease of some villages by the brother of the Mahārājā of Chotā Nāgpur to Sikhs and other foreigners. This insurrection was suppressed with some difficulty in 1832 by Captain (afterwards Sir Thomas) Wilkinson.

Oraon.—An aboriginal tribe whose home is in Rānchī District, Bengal. The members of the tribe call themselves Kurukh, and they believe that they came from the Carnatic, whence they travelled up the Narbadā river, and settled in Bihār on the banks of the Son. Driven out by the Muhammadans, the tribe split into two divisions, one of which followed the Ganges and finally settled in the Rājmahāl hills, where they were the progenitors of the Māle or Sauriā race, while the other went up the Son and occupied the north-western portion of the Chotā Nāgpur plateau, whence they ousted the earlier Mundā inhabitants. The Oraons numbered 652,286 in 1901, and they inhabit the north and north-west of Rānchī, the south of Palāmau, and the adjoining States of Gāngpur and Jashpur; numbers have also emigrated to the Jalpaigurī tea gardens. Their language is known as Oraon and is akin to Kanarese; it is spoken by 544,000 of the tribe. The majority of the race are Animists, but 156,000 were returned as Hindus, and 62,000 have been converted to Christianity. Unmarried males sleep in a bachelors' dormitory (*dhumkuria*), and marriage does not take place until after the girls have attained the age of puberty.

Anga.—Ancient kingdom in Bengal, which corresponded with the modern Districts of (north) Monghyr, (north) Bhāgalpur, and Purnea west of the Mahānandā river. It was here that the Pāl dynasty took its rise in the ninth century.

Bāgri (or Bāgdi).—Ancient name for South Bengal, said to have been given by king Ballāl Sen in the eleventh century to the portion of the Gangetic delta immediately east of the Bhāgīrathi river, corresponding with the southern Districts of the modern Presidency Division. The caste of Bāgdis either derived their name from this tract or gave their name to it.

Banga (or Vanga, also called Samatata).—Ancient name for the deltaic tract of Bengal, south of the Padmā river and lying between the Bhāgīrathi and the old course of the Brahmaputra, corresponding with the southern portion of what is now known as Eastern Bengal. It was bounded on the north by the old kingdom of Pundra. The inhabitants are described in the *Raghubansa* as possessing many boats; and they are clearly the ancestors of the Chandāls, who at the present day inhabit this part of the country. This tract gave its name to the Province of Bengal.

Bihār.—Historic name of one of the four sub-provinces which make up the Lieutenant-Governorship of Bengal, the remaining three being Bengal proper, Orissa, and Chotā Nāgpur. It lies between 23° 48′ and 27° 31′ N. and 83° 20′ and 88° 32′ E., and includes the Divisions of PATNA and BHĀGALPUR. The area is 44,259 square miles and the population (1901) 24,241,305. Bihār occupies the north-west corner of Bengal, and is bounded on the north by Nepāl, on the west by the United Provinces of Agra and Oudh, on the south by the Chotā Nāgpur plateau and the Burdwān Division, and on the east by the Rājshāhi Division. It is divided into North and South Bihār by the broad stream of the Ganges, and consists for the most part of an alluvial plain, though in the south detached outliers of the Chotā Nāgpur plateau encroach upon the level, extending at Monghyr as far north as the Ganges itself. The south-Ganges Districts of Patna, Gayā, and Shāhābād comprised the ancient kingdom of MAGADHA, the capital of which was first at Rājgīr, 30 miles north-east of Gayā, and subsequently at Pātaliputra (Patna), and which is best known in connexion with the great Maurya kings Chandragupta and Asoka. North of the Ganges was MITHILĀ, which was a great seat of Sanskrit learning as early as 1000 B.C., and included the modern Districts of Darbhangā, Champāran, and North Muzaffarpur; the south of the latter District comprised the small kingdom of VAISALĪ. Sāran District formed at this time part of the great kingdom of the Kosalas of Oudh, while the eastern Districts of Monghyr, Bhāgalpur, and Purnea as far as the Mahānandā river belonged to the kingdom of ANGA. It was in Magadha that Buddha developed his religion, and the sub-province derives its name from the town of Bihār, which means a Buddhist monastery (*vihāra*). It was here also that Mahāvīra founded the cognate creed of the Jains. The early history of Bihār is detailed in the article on BENGAL. The sub-province did not become a separate unit of administration until early in the thirteenth century, when it came into the hands of the Muhammadans, and was by them formed into a *Sūbah*. In Todar Mal's settlement of 1582 it was divided into eight *sarkārs*, corresponding with the modern Patna Division and the Districts of Monghyr and Bhāgalpur; the remainder of the Bhāgalpur Division was included in the *Sūbah* of Bengal.

Bihār differs from Bengal proper in almost every respect. The extremes of temperature are far greater, so that it is colder in the winter and hotter in the summer, and the climate is drier than in Bengal. The soil is for the most part old alluvium,

and is not fertilized by annual deposits of silt from the great rivers, as in Bengal; it is lighter and more friable, and grows a greater variety of crops. The rainfall is less heavy, begins later, and is more capricious, and the crops are more liable to suffer from drought. The population is denser than in Bengal generally, and the people are hardier and healthier, though not so prosperous. No less than 82 per cent. of the people are Hindus, as compared with 46 per cent. in Bengal; and, especially in the west of the sub-province, the inhabitants are far more largely of Aryan stock than in Bengal proper. The language spoken is Hindī. The most important places are the ancient cities of PATNA, GAYĀ, BIHĀR, and MONGHYR; the towns of MUZAFFARPUR, CHAPRĀ, DARBHANGĀ, and BHĀGALPUR; and SONPUR, the scene of an annual bathing festival.

Jungle Mahāls.—A vague term applied in the eighteenth century to the British possessions and semi-independent chiefdoms in Bengal, lying between the regular Districts of Bīrbhūm, Burdwān, and Bānkurā, and the hill country of Chotā Nāgpur. As the administration became more precise, inconvenience arose from the vagueness of the jurisdiction; and by Regulation XVIII of 1805 the Jungle Mahāls were constituted into a distinctly defined District, consisting of 15 *parganas* or *mahāls* from Bīrbhūm District, 3 from Burdwān (including the greater part of Bishnupur), and 5 from Midnapore (including Mānbhūm and Barābhūm). The separate District of the Jungle Mahāls was abolished by Regulation XIII of 1833, and the territory redistributed among the adjoining Districts. The tract is now comprised within Bīrbhūm, the Santāl Parganas, Bānkurā, Midnapore, and the eastern Districts of the Chotā Nāgpur Division, especially Mānbhūm.

Karna Suvarna.—Ancient kingdom in Bengal, which lay west of the Bhāgīrathi river, and comprised the modern Districts of Burdwān, Bānkurā, (west) Murshidābād, and Hooghly. The best-known king was Sasānka or Narendra, the last of the Guptas, who was a fanatical worshipper of Siva. He invaded Magadha, and cut down the sacred *bodhi* tree at Gayā, early in the seventh century. The capital of this kingdom was probably at RĀNGĀMĀTI in Murshidābād District.

Magadha.—This ancient kingdom is referred to in both the Rāmāyana and the Mahābhārata. The greater part of Magadha proper was situated in Bihār south of the Ganges, with its capital first at Rājgīr and afterwards at Pātaliputra (Patna); but it also extended into the east of what is now the United Provinces, where it marched with the kingdom of

Benares. Magadha was the scene of many episodes in the life of Gautama and is important in the history of Buddhism. About the same period Mahāvīra founded the cognate sect of the Jains. At the time of Alexander's invasion, the kings of Magadha appear to have been recognized as paramount over the greater part of the United Provinces as well as Bengal. Their dominion was still further extended by Chandragupta Maurya and his grandson, the famous Asoka. The Maurya dynasty declined after Asoka's death, and Magadha was conquered about 150 B.C. by a king of Kalinga; but towards the end of the fourth century A.D. a new line of Gupta kings renewed the glories of Magadha, and gradually spread westward to Allahābād, Kanauj, and even Gujarāt, while Samudra Gupta temporarily conquered part of the Deccan. When the Gupta empire broke up early in the sixth century, Magadha was subdued by the Chālukya king Kīrttivarman I, but again became a small kingdom, still ruled by an eastern branch of the Guptas. Inscriptions give the names of eleven kings, the eighth of whom was reigning in 672. The kingdom was absorbed in the dominions of the Pāl dynasty of Bengal in the ninth century. In 1197 the last of the Pāls was dethroned by Muhammad-i-Bakhtyār Khiljī, and the kingdom of Magadha was included in the empire of the Slave kings of Delhi. Magadha formed part of the Jaunpur kingdom for a time, and its later history merges in that of Bihār. Varāha Mihira, the Sanskrit geographer of the sixth century A.D., mentions Magadha as situated in the eastern division of India between KOSALA and MITHILĀ (Tirhut). The kingdom has given its name to a tribe of Brāhmans called Māgadha or Sākaldwīp Brāhmans, and also to the Magahiyā subdivision of the low-caste Doms. Like other kingdoms east of Madhya Desa, its inhabitants were held in low esteem, and this feeling has survived to the present day.

[Lassen, *Ind. Alt.*, vol. i, pp. 135 and 602; Pargiter, *J.A.S.B.*, 1897, p. 86; McCrindle, *Invasion of India by Alexander*, pp. 36, 56, 380, and 404–8; Fleet, *Ind. Ant.*, 1893, pp. 170, 183, and *Gupta Inscriptions*, pp. 200–20; Duff, *The Chronology of India*, passim.]

Mithilā (or Videha).—Ancient kingdom in North Bihār, Bengal. It included the modern Districts of Darbhangā, Champāran, and (north) Muzaffarpur, and was a great seat of Sanskrit learning; it is mentioned in the *Satapatha Brāhmana*. The capital was at Janakpur, in Nepāl; and the boundary seems at one time to have extended as far east as the Kosi

river, so that the kingdom included, besides the Districts above named, parts of Purnea, Monghyr, and Bhāgalpur. According to tradition, the court of king Janaka was attended by philosophers and religious teachers as early as 1000 B.C. Little is really known of the early history of Mithilā. In the ninth century A.D. it seems to have been conquered by the Pāl dynasty of Magadha, and it was again subjugated by Ballāl Sen of Bengal soon after he ascended the throne in A.D. 1069. The Lakshman era, which he inaugurated to celebrate the birth of his son, is in use by the *pandits* of Mithilā to this day. Mithilā was conquered by Muhammad-i-Bakhtyār Khiljī in 1203, but from the middle of the fourteenth century it was for 200 years under the rule of a line of Brāhmans given up to learning and poetry. The best known of this line was Siva Singh, who reigned for four years from 1446. In 1556 Mithilā became merged in the Mughal empire. Mithilā has given its name to one of the five classes of Northern Brāhmans, the Maithilās, whose recognized head is the Mahārājā of Darbhangā.

Rārh.—Ancient name of a portion of Bengal, west of the Bhāgīrathi river. This was one of the four divisions created by king Ballāl Sen, the others being Bārendra between the Mahānandā and Karatoyā rivers, BĀGRI or South Bengal, and BANGA or East Bengal. Rārh corresponded roughly with the kingdom of KARNA SUVARNA, and with the modern Districts of Burdwān, Bānkurā, (west) Murshidābād, and Hooghly.

Tāmralipta (or Suhmā).—Ancient kingdom of Bengal, comprising the modern Districts of Midnapore and Howrah. The earliest rulers belonged to the Peacock dynasty of Rājputs, who were supplanted by Kaibarttas. The capital was at TAMLŪK, a famous port of ancient times and a great stronghold of Buddhism.

Vaisālī.—Ancient kingdom of Bihār, in Bengal, corresponding with the south of the modern Muzaffarpur District. The capital was probably at Basārh, in the Lālganj *thāna*. Vaisālī was a great stronghold of Buddhism, and Gautama is said to have visited it three times. Patna was originally fortified to guard against the confederacy of the Lichchavis, who had their capital at Vaisālī. Here, too, the second Buddhist council was held in A.D. 377, the result of which was to split up the Buddhists into the Northern and Southern sects.

BURDWĀN DIVISION

Burdwān Division.—A Division or Commissionership in Bengal, lying between 21° 36′ and 24° 35′ N. and 86° 33′ and 88° 30′ E. The Division, which covers an area commonly known as West Bengal, includes all the Districts of Bengal proper west of the Bhāgīrathi, the earliest known channel of the Ganges, and corresponds roughly to the ancient RĀRH and TĀMRALIPTA. The Bhāgīrathi, called in its lower reaches the Hooghly, separates it from the Presidency Division, and it extends along the right bank of this river to its mouth in the Bay of Bengal. It is bounded on the south and west by the sub-provinces of Orissa and Chotā Nāgpur, and on the north by the Santāl Parganas and Murshidābād District.

Though outside the Gangetic delta, the eastern portion of the tract is low and of alluvial formation. Farther west, laterite begins to predominate, and the surface rises and becomes more and more undulating and rocky until at last, in the west of Bīrbhūm, Burdwān, Bānkurā, and Midnapore, it includes the eastern fringe of the Chotā Nāgpur plateau.

Since the Division was constituted in 1854, the head-quarters have been several times moved between Burdwān, Howrah, Hooghly, and Chinsura. They were finally transferred to Chinsura in 1896. The following table gives details of the area, population, and land revenue of the six Districts of which the Division is composed:—

District.	Area in square miles.	Population, 1901.	Land revenue and cesses, 1903-4, in thousands of rupees.
Burdwān	2,689	1,532,475	35,35
Bīrbhūm	1,752	902,280	11,58
Bānkurā	2,621	1,116,411	5,72
Midnapore	5,186	2,789,114	28,02
Hooghly	1,191	1,049,282	15,87
Howrah*	510	850,514	
Total	13,949	8,240,076	96,54

* The land revenue and cesses of Howrah are paid into the Collectorate of Hooghly and are included in the figures for that District.

The recorded population fell from 7,604,661 in 1872 to

7,393,954 in 1881, but rose again to 7,689,189 in 1891. The greater portion of the Division suffered severely from the ravages of the notorious 'Burdwān fever' (*see* BURDWĀN DISTRICT), which broke out nearly half a century ago and caused a terrible mortality. During the last twenty years the disease has gradually died out, and the population is at present increasing rapidly. There are now 591 inhabitants per square mile. In 1901 Hindus constituted 83 per cent. of the population, Musalmāns 13 per cent., and Animists 3½ per cent., while there were 9,463 Christians, of whom half were natives. The Division is peopled largely by castes closely allied to the tribes of Chotā Nāgpur, such as the Bāgdi, Bauri, Kaibartta, Kora, Māl, and Santāl. It is also the home of several distinctive castes with claims to a higher rank in the Hindu social system, such as the Aguri, Sukli, Sadgop, Kāyasth, and Rāju, and is the head-quarters of a well-known sub-caste of Brāhmans.

The Division contains 27 towns and 24,869 villages, the largest towns being HOWRAH, the great suburb of Calcutta (population, 157,594), SERAMPORE (44,451), BURDWĀN (35,022), MIDNAPORE (33,140), HOOGHLY with CHINSURA (29,383), and BĀNKURĀ (20,737). The BHĀGĪRATHI, the old channel of the Ganges, is still the sacred stream of the Hindus; TRIBENĪ and TĀRAKESWAR in Hooghly District possess considerable religious importance; and in Bīrbhūm several localities are associated with the legends of Hindu mythology. The whole of the strip extending along the west bank of the Hooghly from north of Hooghly town to the south of Howrah is of great historic interest, containing the sites of the old capital of SĀTGAON and of successive settlements of the Portuguese, English, Dutch, French, and Danes at Bāndel, Hooghly, Chinsura, Chandernagore, and Serampore. The same tract, which includes Howrah, Bally, and Serampore, is now one of the most densely populated industrial areas in India. The north-west of the Division is rich in iron and coal, the centres of the industry being at RĀNĪGANJ and ASANSOL; the output of coal in 1903–4 amounted to 2,837,071 tons. Silk is manufactured in Midnapore, Bīrbhūm, and Bānkurā.

The greater part of the estates of the Mahārājā of Burdwān (*see* BURDWĀN RĀJ) lies within the Division. These were closely assessed at the time of the Permanent Settlement, and the present land revenue of the Division thus exceeds that of the great Patna Division, which has nearly double its area and population.

Boundaries, configuration, and hill and river systems.

Burdwān District.—District in the Burdwān Division of Bengal, lying between 22° 56′ and 23° 53′ N. and 86° 48′ and 88° 25′ E., with an area of 2,689 square miles. It is bounded on the north by the Santāl Parganas, Bīrbhūm, and Murshidābād; on the east by Nadiā; on the south by Hooghly, Midnapore, and Bānkurā; and on the west by Mānbhūm. The administrative head-quarters are at Burdwān Town.

About half of the District is flat, and in the east along the banks of the Bhāgīrathi the soil is waterlogged and swampy. In the north-west, however, the surface undulates, and it is here that the famous Rānīganj coal-field is situated. This corner of the District is one of the busiest industrial tracts in Bengal, and its coal- and iron-fields are thronged by miners from the neighbouring Districts.

The principal rivers are the Dāmodar, the Dhalkisor or Dwārkeswar, the Kharī, the Bānka, and the Ajay, all eventually flowing into the Bhāgīrathi or Hooghly, which demarcates the eastern boundary of the District. The Barākar, though not properly speaking a river of Burdwān, passes along the north-western boundary for a few miles before its junction with the Dāmodar. The Ajay touches Burdwān at its extreme north-western corner, and forms its northern boundary till shortly before its junction with the Bhāgīrathi. The Dwārkeswar runs for about 5 miles along the southern corner of the District. The Kharī, a tortuous stream rising in the Galsi *thāna*, joins the Bhāgīrathi some 6 miles north of Kālna. The Bānka, which also rises in the Galsi *thāna* and passes through the town of Burdwān, flows into the Kharī shortly before its junction with the Bhāgīrathi. The Kunur, which rises in the Farīdpur outpost, is a tributary of the Ajay; and the Singarān, which flows through the Rānīganj *thāna*, joins the Dāmodar.

Geology.

The District is covered with alluvium, except in the Asansol subdivision, where Gondwāna rocks are exposed. These strata extend into the Districts of Bānkurā, the Santāl Parganas, and Mānbhūm, the outcrop covering an area of 500 square miles; they have a dip of from 5° to 25° to the south, and along the southern boundary are turned up and cut off by a great fault. The total thickness is estimated at 11,000 feet; and the strata are divisible into the Tālchers at the base, the Dāmodar in the centre, and the Pānchet at the top. The Tālchers consist of fine silty shales and soft sandstones, among which occur, generally towards the base of the group, well-rolled pebbles and boulders of gneiss and other metamorphic rocks. The

Dāmodar series is subdivided, in ascending order, into the Barākar stage, the ironstone shales, and the Rānīganj stage. The Barākars consist chiefly of sandstones, conglomerates, and coal-seams of somewhat irregular character, thinning out at short distances; black carbonaceous shales with numerous bands of clay ironstone constitute the ironstone shales; and the Rānīganj beds are made up of coarse and fine sandstones, mostly false-bedded and feldspathic, and shales and coal-seams, which are frequently continuous over considerable areas. The Pānchet group is composed of greenish and grey shales at the base, superimposed by red clays and coarse sandstones. All these groups have yielded plant fossils; and the Pānchet rocks contain, in addition, reptilian and fish remains.

In land under rice cultivation are found the usual marsh weeds of the Gangetic plain and many sedges. On ponds and in ditches and still streams float aquatic plants and many submerged water-weeds. The District contains no forests, but the laterite country is in places clothed with coppices of *sāl* (*Shorea robusta*). The villages and towns are surrounded by the usual shrubberies of semi-spontaneous and sub-economic shrubs and small trees. Species of figs, notably the *pīpal* and the banyan, make up, along with bamboos, tamarind, red cotton-tree (*Bombax malabaricum*), mango (*Mangifera*), *Moringa*, and *Odina Wodier*, the arborescent part of these thickets, in which are often present the palms *Phoenix dactylifera* and *Borassus flabellifer*. Hedges and waste places are covered with climbing creepers and various milkweeds. Roadsides are often clothed with a sward of short grasses, and open glades with tall coarse grasses. Botany.

Leopards are found in the jungles adjoining the Bhāgīrathi, and wolves and hyenas are also occasionally met with. Fauna.

Exceptionally high day temperatures are the feature of the hot season, the mean maximum rising to 101° in April. The mean temperature for the year is 80°. Humidity is comparatively low, the mean for the year being 77 per cent. The annual rainfall averages 54 inches, of which 9·2 inches fall in June, 12 in July, and 11·7 in August. Temperature and rainfall.

In 1770 the town of Burdwān was practically destroyed by a rising of the Dāmodar, and the whole country between this river and the Ajay was submerged. In September, 1823, the Dāmodar and Bhāgīrathi flooded the country, causing immense damage and loss of life; and in 1855 there was another serious flood, when the embankment on the right bank of the Dāmodar was destroyed. The country is now protected by embankments Natural calamities.

along the left bank of the Dāmodar and the right bank of the Ajay.

History. Burdwān has been identified with the Parthalis or Portalis which, according to the Greek geographers, was the royal city of the Gangarides. In the seventh century, under the Gupta kings, the District formed part of a kingdom known as Karna Suvarna, and subsequently, under the Sen dynasty, of the Rārh division of Bengal. More recently Gopbhūm appears to have been the seat of a Sadgop dynasty with headquarters at Amrārgarh, where the long lines of fortification that enclosed the town are still visible.

Burdwān is first mentioned in Muhammadan histories in 1574, in which year, after Daud Khān's defeat and death at Rājmahāl, his family was captured in the town of Burdwān by Akbar's troops. About ten years later the District formed the scene of several engagements between Daud's son Kuttu and the imperial forces. In 1624 prince Khurram, afterwards the emperor Shāh Jahān, captured the fort and town of Burdwān. Soon afterwards Abu Rai, a Kāpur Khattrī, migrated to Bengal from the Punjab and founded the BURDWĀN RĀJ. The year 1696 was marked by the rebellion of Subha Singh, *zamīndār* of Chituā and Bardā, who, with the help of the Afghāns, slew the Rājā of Burdwān and overran a great part of the province. In the beginning of the eighteenth century the Marāthās made their appearance at Kātwa, and for the next fifty years the District suffered severely at their hands, the inhabitants frequently leaving their villages and seeking a refuge in the swamps. In 1760 the District of Burdwān, together with Midnapore and Chittagong, was ceded to the East India Company by Mīr Kāsim Khān on the deposition of Mīr Jafar Khān from the governorship of Bengal. At that time it comprised the present Districts of Burdwān, Bānkurā, Hooghly, and a third of Bīrbhūm. In 1805 the Bishnupur *zamīndāri* (Bānkurā) was included in the Jungle Mahāls, and in 1819 Hooghly was also separated from it. Numerous minor transfers took place until the year 1885, when the District assumed its present proportions.

Archaeology. Some interesting tombs are found in Burdwān town, and groups of Siva *lingam* temples at Burdwān and Kalna. In the Garh jungle near Senpahāri in the Kāksa *thāna* are the ruins of a fort said to have been built by Rājā Chitra Sen; and near Barākar at the foot of the Kalyāneswarī hill are temples whose building is attributed to an ancestor of the Rājā of Pānchet. The temples at Beguniā near Barākar also deserve mention.

The population of the present District area decreased from 1,486,400 in 1872 to 1,394,220 in 1881, and to 1,391,880 in 1891, but rose again to 1,532,475 in 1901. The District for many years suffered from a malarial fever of a very virulent type to which it gave its name. The real 'Burdwān fever,' which often proved fatal within one or two days, appears to have died out, though the District is still subject to fevers of a remittent type, the waterlogged tract along the bank of the Bhāgīrathi being particularly unhealthy. Cholera is seldom absent and is markedly endemic in the Kālna *thāna*, but there have been no outbreaks of special violence in recent years. The mortality due to this cause in 1902 was 1·87 per 1,000. Leprosy is very prevalent, and 2·39 per 1,000 of the male population were afflicted with the disease in 1901. The increase of population in the last decade is due to the recovery of the District from the 'Burdwān fever' and to the industrial development of the Asansol subdivision. The principal statistics of the Census of 1901 are shown below:— The people.

Subdivision.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Burdwān	1,268	1	1,688	679,412	536	+ 9·6	64,255
Asansol	618	2	811	370,988	600	+ 19·6	27,980
Kātwa	404	2	465	248,806	616	+ 8·1	20,035
Kālna	399	1	698	233,269	585	+ 0·8	18,018
District total	2,689	6	3,662	1,532,475	570	+ 10·1	130,288

The principal towns are BURDWĀN, the head-quarters, RĀNĪGANJ, ASANSOL, KĀLNA, and KĀTWA. A remarkable increase has taken place in the Asansol subdivision, where the development of the coal trade, especially in Asansol and Barākar, has created an enormous demand for labour. In the Asansol *thāna* alone the population has increased by more than 31 per cent. since 1891 and by 130 per cent. since 1872. In addition to the coal-mines, the iron-works, paper-mills, and potteries attract labourers in large numbers from Bānkurā, Mānbhūm, Hazāribāgh, the Santāl Parganas, Patna, Gayā, Shāhābād, Monghyr, and the United Provinces. On the other hand, numerous clerks emigrate to Calcutta and labourers to Assam. The vernacular is the dialect of Bengali known as Rārhī *boli* or the 'western patois.' Hindus number 1,221,027, or more than 79 per cent. of the population, and Musalmāns

287,403, or 18 per cent.; among the remainder are 21,048 Animists and 2,960 Christians.

Castes and occupations.

Among Hindus, the semi-aboriginal Bāgdis (198,000) are the most numerous caste; the Bauris, another aboriginal race, number 113,000, Brāhmans 110,000, and Sadgops 106,000. The Sadgops, with the Aguris (66,000), who have sprung from them, have their head-quarters here. The Santāls (46,000) are chiefly employed in the coal-fields, though small settlements of them are to be found in the jungle throughout the District. Of the total population, 58·9 per cent. are supported by agriculture, 16·7 per cent. by industries, 1·3 per cent. by commerce, and 2·3 per cent. by the professions.

Christian missions.

The number of Christians more than doubled between 1891 and 1901; but native Christians form little more than a third of the whole, and the increase is mainly due to the large number of Europeans and Eurasians attached to the railways and collieries. The Church Missionary Society is at work in Burdwān town, and the Wesleyan Methodist Mission supports a leper asylum and other charitable institutions at Rānīganj. A Roman Catholic mission has a church and a boarding-school in Asansol, where the Methodist Episcopal Mission also maintains a leper asylum, orphanage, and school; while at Kālna a dispensary is kept up by the Scottish Free Church Mission. Native Christians numbered 1,027 in 1901.

General agricultural conditions and principal crops.

The alluvium which covers the greater part of the District is extremely fertile; but the uplands in the west and north are sterile, and in the undulating rocky country in the extreme north-west maize is the only crop that thrives. The chief agricultural statistics for 1903-4 are shown below, in square miles:—

Subdivision.	Total.	Cultivated.	Cultivable waste.	Irrigated.
Burdwān . . .	1,268	643	156	33
Asansol . . .	618	257	76	...
Kātwa . . .	404	172	44	...
Kālna . . .	399	226	49	...
Total	2,689	1,298	325	33

NOTE.—The area shown as irrigated is that only which is watered from the Eden Canal.

Nearly a quarter of the cultivated area is twice cropped. Rice is the most important staple, occupying 1,221 square miles, or more than three-quarters of the total cultivated area; winter rice covers four-fifths of the whole. Both the winter

and early rice crops are transplanted, the latter being generally transplanted at the end of May and cut in the beginning of September, while the winter crop is transplanted in July and cut at the end of November or the beginning of December. In the Asansol subdivision rice is in some parts grown only in the hollows between the undulating hills; but the slopes are often terraced for rice cultivation, the water being retained by embankments, and in such cases the crop is reaped considerably later than elsewhere. Sugar-cane, oilseeds, and pulses are grown everywhere, and a small quantity of jute in the *thānas* of Kālna and Jamālpur. Maize is raised on the western border, and 1,700 acres are under indigo, though this crop is dying out. Potatoes are largely grown.

Improvements in agricultural practice.

The area under cultivation is more or less stationary, but the amount of orchard and garden produce is increasing. An agricultural farm is maintained by the Burdwān Rāj at Pālla near Burdwān town, where experiments are conducted under the supervision of the Agricultural department. Little advantage has been taken of the Land Improvement Loans Act till recently; during the scarcity of 1897, Rs. 23,000 was advanced, and applications for loans are now becoming frequent.

Cattle.

The cattle are poor, and there are no large pasture-grounds except along the banks of the Bhāgīrathi; but straw and grass are plentiful. Annual fairs are held at Agradwīp, Uddhanpur, Dādia, Bāgnapāra, and Kānchannagar; these are primarily religious gatherings, but are used also for trade purposes.

Irrigation.

About 33 square miles in the Burdwān and Jamālpur *thānas* and in the Memāri outpost are irrigated from the EDEN CANAL and its distributaries; and elsewhere small streams and tanks are often utilized for irrigation, the water being lifted on to the fields by hollowed tree-trunks known as *dongās*. In the Kāksa *thāna* near the Dāmodar a few shallow irrigation wells have been sunk.

Mines and minerals. Coal.

The character of the coal-field has been described under Geology. The average of 31 assays of samples from different mines gives as a result: moisture, 4·80 per cent.; volatile matter, 25·83 per cent.; fixed carbon, 53·20 per cent.; and ash, 16·17 per cent. The field extends from Andāl to Barākar in the Asansol subdivision. In spite of the difficulties caused by the scarcity of labour and shortage of wagons, the mining industry has made very rapid strides of late years. In 1903 there were 110 mines, with an output of 2,759,000 tons, the number of work-people employed being 30,566. Most of these collieries are managed by European companies with head-

quarters in Calcutta, but some of them, notably the Siārsol collieries, are owned and worked by natives. Most of the pits are shallow and are worked by a system of inclines; cages are, however, used in all the principal European collieries, the deepest pit being one in the Disergarh colliery near Barākar. The coal is used by steamers, factories, and railways throughout India. Most of it is taken by rail to Calcutta, whence large quantities are exported to Bombay and Colombo. The miners are chiefly local Bauris or immigrant Santāls. They are usually paid 5 annas for loading a half-ton tub, and at this rate a man can earn 12 annas a day.

Iron.

An iron-field is situated near Bārul, about 11 miles north of Rānīganj, and pig-iron is smelted at the Barākar Iron and Steel Works. In 1904 the out-turn was 40,000 tons of pig-iron valued at 17·30 lakhs, and 15,000 tons of castings valued at 12 lakhs. The ore is obtained chiefly from the ironstone shales of the Dāmodar series. Below the ground the ore is in the form of carbonate, but at the surface it consists of hematite and limonite.

The out-turn of the pottery works at Rānīganj was valued in 1904 at 7 lakhs. The clays used are chiefly obtained in the neighbourhood of the coal-measures, and consist of more or less decomposed shales. A quantity of laterite road-metal is exported by rail from the Kāksa *thāna* in the Asansol subdivision.

Arts and manufactures.

Silk- and cotton-weaving were formerly important industries; but they have suffered from competition with English-made goods, though silk is still manufactured in small quantities at Rādhākāntpur and Memāri, and cotton in other places. Brass-work is made at Dainhāt, Begunkholā, Banpās, and several other places, and cutlery in Burdwān town. Shellac and lac dye are manufactured at Dīgnagar in the Ausgram *thāna*.

The District contains some important factories. The Bengal Iron and Steel Works at Kendwa, near Barākar, manufacture railway plant, and employ 1,900 operatives; the out-turn in 1903–4 was 43,737 tons, valued at 24·6 lakhs. Messrs. John King & Co., Engineers and Founders, of Howrah, have a branch of their business at Barākar. The Rānīganj potteries employ 1,500 operatives and turn out drain-pipes and roofing tiles; art pottery is also manufactured. The Bengal Paper Mills at Rānīganj employ 775 operatives, and in 1903–4 made 2,884 tons of paper valued at 8·65 lakhs. The Bengal Dyers and Skinners Company have opened works at Bānsra, near Rānīganj, and manufacture a tanning extract from myrabolams

which is exported to Scotland. Finally, there are three oil-mills in Rānīganj and two in Burdwān town, the out-turn of which was valued in 1901 at $5\frac{3}{4}$ lakhs.

The principal exports, besides coal and iron, are rice, pulses of all sorts, rape-seed, and oil-cake, while the imports are English piece-goods, salt, spices, and castor-oil. The imports and exports are mostly from and to Calcutta, but there is a considerable export of grain to the west. The chief centres of trade are the towns of RĀNĪGANJ, ASANSOL, and BURDWĀN. The importance of KĀTWA and KĀLNA has declined since the opening of the East Indian Railway. This now carries most of the trade, and the railway stations at Memāri, Mānkur, Pānāgarh, and Guskharā have become important centres. Commerce.

The East Indian Railway chord-line (broad gauge) runs through the length of the District, the loop-line branching north at Khāna Junction. The Jherriā branch extension leaves the chord-line at Sītārāmpur, having a station at Barākar. The Andāl loop separates from the chord-line at Andāl and goes round to the north of the coal-fields, rejoining the chord at Alīpur; there is also an extension from this line to Tapasi. From Asansol a cross-line connects with the Bengal-Nāgpur Railway at Sini. Railways.

The grand trunk road traverses the District for 100 miles; this and portions of the Rānīganj-Midnapore road and the Lithoria road, near Sītārāmpur, are maintained by the District board with the help of a grant from Provincial funds. The District board maintains in all 175 miles of metalled and 253 miles of unmetalled roads, the most important being those connecting Burdwān town with Kātwa, Kālna, Arāmbāgh, and Bānkurā. Roads.

The chief waterway is the Bhāgīrathi, up which steamers ply to Kālna all the year round; country boats also bring down a large quantity of grain from Nādanghāt, the principal rice mart in the interior. There are important ferries over the Bhāgīrathi and the Dāmodar. Water communications.

Burdwān suffered severely in the great famine of 1770. In 1866, the year of the Orissa famine, numbers of destitute persons flocked in from the surrounding Districts, and relief was given to 348,000 persons. Part of the District suffered during the famine of 1873–4; and there was some distress in 1884–5, when relief measures had to be undertaken in certain isolated tracts and Rs. 7,000 was spent on gratuitous relief. Again in 1904 the failure of the rice crop caused considerable distress in the Kātwa and head-quarters subdivisions. The Famine.

area affected was about 376 miles, and relief works were opened by the District board; but at no time did the number on relief rise above 2,981. Besides this expenditure, Rs. 35,000 was advanced in the shape of loans and Rs. 3,000 was spent in gratuitous relief.

District subdivisions and staff.

For administrative purposes the District is divided into four subdivisions, with head-quarters at BURDWĀN, ASANSOL, KĀLNA, and KĀTWA. The staff subordinate to the Magistrate-Collector at head-quarters consists of five Deputy-Collectors and occasionally a Joint-Magistrate. A Covenanted Civil Servant, assisted by a Sub-Deputy-Collector, is in charge of the Asansol subdivision; a Deputy-Collector, assisted by a Sub-Deputy-Collector, is in charge of the Kālna subdivision; and a Deputy-Collector, with a *kānungo*, is stationed at Kātwa.

Civil and criminal justice.

The civil courts at Burdwān are those of the District Judge, an Additional Judge, a Sub-Judge, and five Munsifs; there are also Munsifs at Rānīganj and Kālna, and two at Kātwa. The criminal courts are those of the Sessions Judge, the District and subdivisional magistrates, and their subordinates. Dacoities occur frequently, and petty thefts and burglaries are very common in the Asansol subdivision, especially in the neighbourhood of Asansol.

Land revenue.

At the settlement of Todar Mal the present District of Burdwān fell within various *sarkārs*, portions of which were subsequently amalgamated into one great *zamīndāri*, including the whole of Bānkurā and Pānchet (Mānbhūm) together with parts of Hooghly and Bīrbhūm. It had a revenue of 20·47 lakhs, and was granted to the East India Company in 1760. At the time of the Permanent Settlement in 1793 the Mahārājā of Burdwān, with whom it was settled, entered into an agreement to pay a revenue of 40·15 lakhs of *sicca* rupees and 1·94 lakhs *pulbandhi* (for upkeep of embankments). He experienced great difficulty in meeting the Government demand on this huge estate, but solved it by the creation of permanent leases known as *patnī* tenures, whose rent was fixed in perpetuity, but which could be summarily sold in default of payment. The *patnīdārs* in their turn let their lands on lease to *dar-patnīdārs*, *dar-patnīdārs* to *sī-patnidārs*, and in some rare instances *sī-patnidārs* created *chahārum patnīs*. The sales were at first held by the Mahārājā, but subsequently the tenures were recognized by Government, and by the Patnī Sale Law (Regulation VIII of 1819) their sale was placed in the hands of the Collector. Most of the District is now held in *patnī* from the BURDWĀN RĀJ. There are also a large

number of *aimmā* estates originally granted free of revenue by the Muhammadan government, and other revenue-free estates and rent-free tenures; but many of the old service holdings, e.g. the *ghātwāli* lands, have been resumed. The land revenue demand of 30·49 lakhs is higher than that of any other part of Bengal, the incidence of Rs. 2–10–9 per cultivated acre being exceeded only in the neighbouring District of Hooghly. Nearly all the revenue is paid by 5,005 permanently settled estates, but 133 estates are temporarily settled and 38 held direct by Government, the revenue being Rs. 10,600 and Rs. 3,000 respectively. Rents rule higher than in any other part of Bengal, except Hooghly. They are lowest in the poor paddy lands in the Rānīganj and Asansol *thānas*, and highest in the rich alluvial soil farther east, ranging from Rs. 3–6 per acre in high lands to Rs. 9 in low lands, the average being Rs. 7–12–7.

The following table shows the collections of land revenue and of total revenue (principal heads only), in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	30,45	30,13	30,50	30,51
Total revenue . .	38,36	40,51	45,18	46,32

Local and municipal government.

Outside the six municipalities of BURDWĀN, KĀLNA, KĀTWA, DAINHĀT, RĀNĪGANJ, and ASANSOL, local affairs are managed by the District board, with subordinate local boards at Asansol, Kālna, and Kātwa. In 1903–4 the income of the District board was 2·74 lakhs, of which Rs. 1,67,000 was derived from rates; and the expenditure was 3·07 lakhs, of which Rs. 1,94,000 was spent on public works and Rs. 62,000 on education.

Public works.

An embankment starting at Sīlla, 20 miles west of Burdwān town, protects the left bank of the Dāmodar. Another important embankment runs along the right bank of the Ajay in the Asansol subdivision, extending 7 miles from Gaur Bāzār to Kajlādihi, 4 miles from Bishnupur to Arjunbāri, and 11 miles from Sātkāhanīa to Sāgarpostā, a total length of 22 miles. The EDEN CANAL has been already mentioned.

Police and jails.

The District contains 20 police stations and 14 outposts. The force under the District Superintendent in 1904 consisted of 7 inspectors, 42 sub-inspectors, 59 head constables, and 540 constables, including 154 town *chaukīdārs* stationed in the six

municipalities; there was also a rural police force of 4,918 village watchmen and 393 *daffadārs* or head watchmen. There are still many watchmen, called *phāridārs*, *paiks*, and *ghātwāls*, who hold land in return for police services; but the majority of them have been replaced by paid watchmen under the Village Chaukīdāri Act, and the *ghātwāli* lands are now under resumption. The District jail at Burdwān town has accommodation for 256 prisoners, and subsidiary jails at the three subdivisional out-stations for 88.

Education. In 1901 the proportion of literates was 8·5 per cent. (16·2 males and 0·8 females). The total number of pupils under instruction increased from 45,442 in 1881–2 to 47,139 in 1892–3 and 48,084 in 1900–1. In 1903–4, 47,434 boys and 3,396 girls were at school, being respectively 41·3 and 2·9 per cent. of the children of school-going age. The total number of educational institutions, public and private, in that year was 1,412: namely, one Arts college, 138 secondary, 1,225 primary, and 48 special schools. The expenditure on education was 3·28 lakhs, of which Rs. 23,000 was met from Provincial funds, Rs. 57,000 from District funds, Rs. 4,000 from municipal funds, and 1·55 lakhs from fees. The most important institutions are the Burdwān Rāj College and a technical school in Burdwān town. A free English high school, established in 1863 by the trustees of the will of the late Bābu Sārada Prasād Singh Rai, at Chakdīghi also deserves mention. Of the primary schools, nine are for the education of aboriginal tribes.

Medical. In 1903 the District contained 10 dispensaries, with accommodation for 108 in-patients; the cases of 56,000 out-patients and 2,086 in-patients were treated, and 3,918 operations were performed. The expenditure was Rs. 27,000, of which Rs. 1,700 was met by Government contributions, Rs. 7,000 from Local and Rs. 13,000 from municipal funds, and Rs. 4,000 from subscriptions.

Vaccination. Vaccination is compulsory only within municipal areas. Elsewhere it is backward, and in 1903–4 only 45,000 persons, representing 31 per 1,000 of the population, were vaccinated, or rather less than the general average for Bengal.

[Sir W. W. Hunter, *Annals of Rural Bengal* (1868), and *Statistical Account of Bengal*, vol. iv (1876); 'Burdwān Rāj,' *Calcutta Review* (1872); A. C. Sen, *Agricultural Experiments and Inquiries in the Burdwān Division* (Calcutta, 1886, reprinted 1897); W. B. Oldham, *Some Historical and Ethnical Aspects of the Burdwān District* (Calcutta, 1894);

W. T. Blanford, 'The Raniganj Coal-field,' *Memoirs, Geological Survey of India*, vol. iii, part i.]

Burdwān Subdivision.—Head-quarters subdivision of Burdwān District, Bengal, lying between 22° 56′ and 23° 37′ N. and 87° 26′ and 88° 14′ E., with an area of 1,268 square miles. The subdivision consists of a flat alluvial plain, covered with rice crops. The population in 1901 was 679,412, compared with 619,868 in 1891. It contains one town, BURDWĀN (population, 35,022), the head-quarters; and 1,688 villages. It is less densely populated than the rest of the District, supporting only 536 persons per square mile. Brass and bell-metal ware and cutlery are manufactured at Banpās, and silk *dhotīs* and *sārīs* at Memāri; a large annual fair is held at Kānchannagar, a suburb of Burdwān town. A considerable *tasar* silk industry is carried on at Mānkur, which is also an important trade centre.

Asansol Subdivision.—North-western subdivision of Burdwān District, Bengal, lying between 23° 25′ and 23° 53′ N. and 86° 48′ and 87° 32′ E., with an area of 618 square miles. Until 1906 it was known as the Rānīganj subdivision. The north-western part consists of a rocky undulating country, which merges in the south and south-east in the alluvial plain stretching along the Dāmodar river. The population in 1901 was 370,988, compared with 310,273 in 1891. It contains two towns, ASANSOL (population, 14,906), the head-quarters and a great railway centre, and RĀNĪGANJ (15,841), the former head-quarters; and 811 villages. The subdivision is now the most progressive part of the District, but its density of population, 600 persons per square mile, is still slightly below that of Kātwa. It differs from the rest of Burdwān, which is entirely agricultural in character; the alluvial soil here changes to laterite, and rich coal- and iron-fields have of recent years caused a continuous increase in the number and prosperity of its inhabitants. Brass and bell-metal ware and shellac and lac-dye are manufactured at Dīgnagar.

Kātwa Subdivision.—North-eastern subdivision of Burdwān District, Bengal, lying between 23° 26′ and 23° 50′ N. and 87° 44′ and 88° 17′ E., with an area of 404 square miles. The subdivision is a flat alluvial tract, and in the east, along the banks of the Bhāgīrathi, the soil is waterlogged and swampy. The population in 1901 was 248,806, compared with 230,227 in 1891, the density being 616 persons per square mile. It contains two towns, KĀTWA (population, 7,920), the head-quarters, and DAINHĀT (5,618); and 465 villages. Large

annual fairs are held at Agradwīp and Dādia. The manufacture of *tasar* silk is an important industry.

Kālna Subdivision.—South-eastern subdivision of Burdwān District, Bengal, lying between 23° 7′ and 23° 36′ N. and 88° 0′ and 88° 25′ E., with an area of 399 square miles. This subdivision, like the adjoining subdivision of Kātwa, is flat and alluvial, and the eastern portion along the bank of the Bhāgīrathi is low-lying and marshy. The population in 1901 was 233,269, compared with 231,512 in 1891, the density being 585 persons per square mile. It contains one town, KĀLNA (population, 8,121), the head-quarters; and 698 villages. Nādanghāt possesses a large river trade in rice.

Burdwān Rāj.—Estate in Bengal, comprising an area of 4,194 square miles, in nineteen Districts, but chiefly in Burdwān, Mānbhūm, Hooghly, and Bīrbhūm. The Burdwān Rājās trace their origin back to 1657, when Abu Rai, a Kāpur Khattrī from Kotli in Lahore, who had migrated to Burdwān, was appointed *chaudhri* and *kotwāl* of Rikābi Bāzār in the town of Burdwān, under the *faujdār* of *chaklā* Burdwān. The *zamīndār* who held the estate in 1696 was defeated and slain by the rebellious Subha Singh, but the latter was in his turn killed by the Rāj Kumāri, whom he was attempting to outrage. The title of Rājā was first conferred on Chitra Sen Rai in 1741; but the best-known representatives of the family have been Kīrti Chandra (1702–40), who conquered and annexed the petty kingdoms of Chandrakonā and Bardā near Ghātāl in Midnapore; Tilak Chānd (1744–71), who was vested with the title of Mahārāj Adhirāj Bahādur; and Mahtāb Chānd (1832–79), who assisted the Government in suppressing the Santāl rebellion of 1855, and later at the time of the Mutiny, and who was appointed a Member of the Viceroy's Legislative Council. Mahārājā Aftāb Chānd (1881–5) died without heirs, and his widow adopted the present Mahārāj Adhirāj, Bijoy Chānd Mahtāb Bahādur, son of Rājā Ban Bihāri Kāpur. During his minority the estate was administered by the Court of Wards, and was managed with conspicuous success by Rājā Ban Bihāri Kāpur, first as joint and later as sole manager. The Mahārājā on coming of age was installed in February, 1903, by the Lieutenant-Governor of Bengal. He visited England in 1906.

The territorial extent of the Burdwān *zamīndāri* at the close of the seventeenth century was limited to 6 or 7 *parganas*, but Mahārājā Kīrti Chandra increased it to 57 *parganas*, extending over 5,000 square miles. At the time of the cession of Burd-

wān to the Company in 1760, the revenue payable was assessed at 31·75 lakhs for three years, after which it was reassessed at 41·72 lakhs, the increase being due to the resumption of lands hitherto held as *bāze-zāmīn* without payment of revenue. At the Permanent Settlement the Mahārājā entered into an agreement with the Government to pay a revenue of *sicca* Rs. 40,15,109, and *sicca* Rs. 1,93,721 for *pulbandhi* or repair of embankments. The difficulty which he experienced in meeting the Government demand was eventually solved by the creation of leases under the *patnī* tenure. The main conditions of this tenure, which is of a permanent character, are the hypothecation of the land as security for the punctual payment of rent, and liability to summary sale for default. In 1799 the Mahārājā gave away a large portion of the estate in these leases; and the system, which was legalized by Regulation VIII of 1819, was gradually extended, so that by 1825 nearly the whole estate had been leased out in this manner. When defaulting tenures were bought in by the proprietor for want of adequate bids, it was formerly the custom to relet the lands covered by them in *patnī*, but under the administration of the Court of Wards they were kept under direct management; between 1891 and 1896 these lands, which are known as *khās mahāls*, were regularly surveyed and settled. The operations extended to Burdwān, Hooghly, and Bānkurā Districts, covering an area of 107 square miles, which was settled at a rental of Rs. 95,000.

The Mahārājā of Burdwān is the largest revenue-payer in India, the present demand from the estate on account of land revenue and cesses being 31·7 lakhs and 3·3 lakhs respectively. Owing to the close assessment made at the time of the Permanent Settlement, the incidence of land revenue in the Burdwān estate is remarkably high for Bengal.

Asansol Town.—Head-quarters of the subdivision of the same name in Burdwān District, Bengal, situated in 23° 41′ N. and 86° 59′ E., on the East Indian Railway, 132 miles from Calcutta. Population (1901), 14,906. Asansol is a rapidly growing town, being an important railway junction and one of the chief centres of the coal industry. A large number of European and Eurasian employés live here. It was constituted a municipality in 1896. The income and expenditure during the decade ending 1901–2 averaged Rs. 14,000. In 1903–4 the income was Rs. 20,300, half of which was derived from a tax on houses and lands; and the expenditure was Rs. 20,400, including Rs. 9,000 spent on conservancy. The East Indian Railway Volunteers and the 'B' troop of the Chotā Nāgpur Mounted

Rifles have their head-quarters at Asansol. A Roman Catholic mission maintains a church, a convent, and schools; and a Methodist Episcopal mission supports a leper asylum, an orphanage, and a girls' school. The town contains the usual public offices; the subsidiary jail has accommodation for 44 prisoners.

Banpās.—Village in the head-quarters subdivision of Burdwān District, Bengal, situated in 23° 23′ N. and 87° 49′ E. Population (1901), 1,425. It is noted for its manufactures of brass and bell-metal ware and cutlery.

Barākar.—Village in the Asansol subdivision of Burdwān District, Bengal, situated in 23° 45′ N. and 86° 49′ E., on the left bank of the Barākar river. The population of Barākar proper in 1901 was 385, but the name is ordinarily understood to include several other villages with an aggregate population of nearly 5,000. Barākar is the site of the Bengal Iron and Steel Works, which employ 1,900 hands and had a total output in 1903–4 of 43,737 tons, valued at 24·6 lakhs. The main business is the manufacture of railway plant. The manufacture of steel was tried, but was abandoned as unprofitable in 1906. Messrs. John King & Co., Engineers and Founders, of Howrah, have also a branch here. Barākar contains several interesting remains, including some ancient stone temples.

[*Archaeological Survey Reports*, vol. viii, pp. 150–4.]

Bārul.—Village in the Asansol subdivision of Burdwān District, Bengal, situated in 23° 44′ N. and 87° 7′ E. Population (1901), 532. It lies in the middle of the iron-ore tract, and has given its name to the surrounding iron-ore field. The total amount of ore extracted in 1900 was 57,000 tons, or nearly three times the quantity obtained ten years previously.

Burdwān Town (*Bārdhamāna*, the 'increasing' or 'prosperous'). — Head-quarters of Burdwān District, Bengal, situated in 23° 14′ N. and 87° 51′ E., on the Bānka river. Population (1901), 35,022 (excluding 3,669 persons within railway limits), of whom 25,453 were Hindus and 9,441 Musalmāns, while 128 belonged to other religions. The town really consists of numerous small villages scattered over an area of 9 square miles, and the greater part of it is rural in character. In 1814 the population was estimated at 53,927. For a long time the town was looked upon as a sanitarium; but it suffered very severely from the 'Burdwān fever' from 1863 onwards, and though now free from this virulent type of fever, it is still very unhealthy. It was the head-quarters of the Commissioner of

the Burdwān Division from 1854 to 1871, and again from 1884 to 1896.

The town is first mentioned in history as having been captured by prince Khurram in 1624, and again in 1696 by the Hindu rebel Subha Singh. There are several ancient tombs, the most interesting being those of Pīr Bahrām Shāh, Khoja Anwār Shāh, Sherāfgan, and Kutb-ud-dīn; and a group of 108 Siva *lingam* temples constructed in 1788 is situated at Nawāb Hāt, about 2 miles from the town. Within the town itself the principal places of interest are the palaces and gardens of the Mahārājā. Cutlery is manufactured, and there are two oil-mills. A large annual fair is held at Kānchannagar, one of the suburbs. Burdwān was constituted a municipality in 1865. The income during the decade ending 1901–2 averaged Rs. 1,13,300, and the expenditure Rs. 1,00,300. In 1903–4, out of a total income of Rs. 1,43,000, Rs. 39,000 was derived from a tax on houses and lands, Rs. 24,000 from a water rate, Rs. 17,000 from a conservancy rate, Rs. 6,000 from a tax on vehicles, Rs. 4,000 each from tolls and from rents, Rs. 3,000 from markets, and Rs. 5,000 from educational institutions. The incidence of taxation was Rs. 2–8–7 per head of the population. In the same year the expenditure of Rs. 1,10,000 included Rs. 4,000 spent on lighting, Rs. 2,000 on drainage, Rs. 32,000 on conservancy, Rs. 11,000 on medical relief, Rs. 12,000 on roads, and Rs. 7,000 on education.

Water-works constructed at a cost of 2 lakhs were opened in 1884, the Mahārājā of Burdwān contributing half a lakh, and the remainder being borrowed from Government; the health of the inhabitants has since greatly improved. The town possesses the usual public offices. The District jail has accommodation for 256 prisoners, the chief industries being *surki*-pounding and the manufacture of oil and *newār*; carpets are also made, and dyeing is carried on on a small scale. The most important educational institutions are the Burdwān Rāj College, a free institution maintained by the Rāj, and a technical school affiliated to the Sibpur Engineering College and maintained by the District board with a contribution from the municipality.

Dainhāt.—Town in the Kātwa subdivision of Burdwān District, Bengal, situated in 23° 36′ N. and 88° 11′ E., on the right bank of the Bhāgīrathi. Population (1901), 5,618. Brass and bell-metal work is manufactured, and weaving is also carried on; there is some trade in salt, jute, grain, English cloth, cotton, and tobacco. Dainhāt was constituted a munici-

pality in 1869. The income during the decade ending 1901–2 averaged Rs. 3,900, and the expenditure Rs. 3,500. In 1903–4 the income was Rs. 5,400, chiefly derived from a tax on persons (or property tax); and the expenditure was Rs. 4,900.

Dīgnagar.—Village in the head-quarters subdivision of Burdwān District, Bengal, situated in 23° 26′ N. and 87° 42′ E. Population (1901), 2,717. It is a local market for grain and sugar, and is noted for its brass and bell-metal ware. Shellac and lac-dye are also manufactured.

Kālna Town.—Head-quarters of the subdivision of the same name in Burdwān District, Bengal, situated in 23° 13′ N. and 88° 22′ E., on the right bank of the Bhāgīrathi. Population (1901), 8,121. Kālna was a place of great importance in Muhammadan times, and the ruins of a large fort which commanded the river are still to be seen. It was formerly the port which supplied the District, and steamers still visit it throughout the year; but it has suffered owing to the competition with the East Indian Railway, and its population has declined. A conspicuous feature of the town is a group of 109 Siva *lingam* temples, which were built in 1809. Kālna was constituted a municipality in 1869. The income during the decade ending 1901–2 averaged Rs. 13,000, and the expenditure Rs. 11,000. In 1903–4 the income was Rs. 16,000, of which Rs. 4,000 was derived from a tax on persons (or property tax) and Rs. 4,000 from a tax on vehicles, &c.; and the expenditure was Rs. 14,000. The town contains the usual public offices; the subsidiary jail has accommodation for 20 prisoners.

Kātwa Town.—Head-quarters of the subdivision of the same name in Burdwān District, Bengal, situated in 23° 39′ N. and 88° 8′ E., at the confluence of the Bhāgīrathi and Ajay. Population (1901), 7,220. Kātwa was at one time considered the key to Murshidābād when that city was the capital of Bengal, and an old fort here was the scene of the defeat of the Marāthās by Alī Vardī Khān. It is held sacred by the Vaishnavas, as having been the place where their apostle Chaitanya entered upon the life of an ascetic. Steamers used to visit it all the year round, but owing to the silting up of the Bhāgīrathi and the opening of the East Indian Railway its commercial importance has greatly declined; it is now proposed to construct a branch railway from Hooghly. Kātwa was constituted a municipality in 1869. The income during the decade ending 1901–2 averaged Rs. 7,800, and the expenditure Rs. 7,000. In 1903–4 the income was Rs. 10,200, half of which was

derived from a tax on persons (or property tax); and the expenditure was Rs. 8,300. The town contains the usual public offices; the subsidiary jail has accommodation for 24 prisoners.

Khāna.—Village in the head-quarters subdivision of Burdwān District, Bengal, situated in 23° 20′ N. and 87° 46′ E. Population (1901), 1,600. Khāna is an important junction on the East Indian Railway, where the chord-line branches off from the loop-line.

Mānkur.—Village in the head-quarters subdivision of Burdwān District, Bengal, situated in 23° 26′ N. and 87° 34′ E. Population (1901), 7,206. Mānkur is a station on the chord-line of the East Indian Railway, 90 miles from Calcutta, and has a considerable trade; it is also a local seat of the silk-weaving industry. The Church Missionary Society maintains a medical mission, at which 11,000 patients were treated in 1901.

Memāri.—Village in the head-quarters subdivision of Burdwān District, Bengal, situated in 23° 10′ N. and 88° 7′ E. Population (1901), 1,674. Memāri is a station on the East Indian Railway and an important trade centre. Silk *sārīs* and *dhotīs* are manufactured.

Nādanghāt.—Village in the Kālna subdivision of Burdwān District, Bengal, situated in 23° 22′ N. and 88° 15′ E., on the Kharī river. Population (1901), 916. Nādanghāt is the principal rice mart in the interior of the District, whence large quantities of grain are carried by country boats to the Bhāgīrathi.

Rānīganj.—Town in the Asansol subdivision of Burdwān District, Bengal, situated in 23° 36′ N. and 87° 6′ E., on the north bank of the Dāmodar river. Population (1901), 15,841. The town, which has a station on the East Indian Railway and was the head-quarters of the subdivision until 1906, owes its importance to the development of the coal industry and is one of the busiest places in Bengal. Extensive potteries give employment to 1,500 hands, the value of the out-turn in 1903–4 being estimated at 6·45 lakhs. Paper-mills employ nearly 800 hands, and 2,884 tons of paper valued at 8·65 lakhs were manufactured in 1903–4; 3 oil-mills are also at work. There is a considerable trade in rice and oil. Rānīganj was constituted a municipality in 1876. The income during the decade ending 1901–2 averaged Rs. 19,000, and the expenditure Rs. 16,000. In 1903–4 the income was Rs. 22,000, of which Rs. 12,000 was derived from a tax on houses and lands; and the expenditure was Rs. 20,100. A Wesleyan

Methodist mission maintains a leper asylum, an orphanage, and day schools.

Boundaries, configuration, and hill and river systems.

Bīrbhūm.—District in the Burdwān Division of Bengal, lying between 23° 33′ and 24° 35′ N. and 87° 10′ and 88° 2′ E., with an area of 1,752 square miles. The name is commonly derived from Bīr Bhūmi, 'the land of heroes'; but some trace it to Bīr Rājā, a Hindu king of Rājnagar, the old capital. Probably Bīr was the title of an old line of rulers, just as were Mān, Singh, and Dhal of the rulers of Mānbhūm, Singhbhūm, and Dhalbhūm respectively. The District is bounded on the north-west by the Santāl Parganas; on the east by Murshidābād and Burdwān; and on the south by Burdwān. The administrative head-quarters are at SŪRI.

The District forms part of the eastern fringe of the Chotā Nāgpur plateau, and the surface is broken by a succession of undulations from north-west to south-east. To the west these rise into high ridges of laterite separated by valleys a mile or more in width, while to the south-east the valleys gradually merge into the alluvial plains of the Gangetic delta. The drainage from the plateau passes south-eastwards across the District, the only rivers of any size being the Mor and the Ajay, which forms the southern boundary. The Mor is a tributary of the Dwārka, and the latter and the Ajay are both affluents of the Bhāgīrathi. Their width varies from 200 yards to half a mile; neither river is navigable in the hot season, when they run almost dry in broad sandy beds. In the rains they swell rapidly till they overtop their banks and inundate the surrounding country, but, even then, the Mor is only navigable down-stream. The other streams deserving notice are the Hinglā, a tributary of the Ajay, the Bakreswar, the Dwārka and its tributary the Brāhmanī, and the Bānsloi, all of which rise in the Santāl Parganas.

Geology.

The geological formations represented in Bīrbhūm are the Archaean gneiss, the Gondwāna system, the laterite, and the Gangetic alluvium. The last conceals the older rocks, except in a narrow strip along the western boundary. The gneiss belongs to the division designated Bengal gneiss, which is remarkable for the great variety of rocks which it contains. The Gondwāna system includes the Rājmahāl, Dubrājpur, and Barākar subdivisions. The Barākar is a subdivision of the Lower Gondwāna, while the two other groups belong to the Upper Gondwāna; they occur in the Rāmgarh hills, which form the southern extension of the Rājmahāl range. The Dubrājpur group is found only in a narrow strip with faulted

western boundary along the western border of the range. It consists of coarse grits and conglomerates, often ferruginous, containing quartz and gneiss pebbles, with occasionally hard and dark ferruginous bands. It is unconformably overlaid by the Rājmahāl group, consisting chiefly of bedded basic volcanic lavas of the nature of dolerites and basalts. Basic dikes scattered through the gneiss area represent the underground portion of these eruptions. Intercalated between successive lava-flows are some aqueous sedimentary layers, containing fossil plants similar to those found near Jubbulpore and in Cutch. The coal-measures are represented only by the Barākar group which forms the small Tangsuli field, on the northern bank of the Mor river, and by the northern edge of the Rānīganj coal-field. The coal which is contained in those outcrops is scanty and of poor quality. As a rule, it is scarcely more than a carbonaceous shale. Ferruginous laterite occupies large areas in the Rāmgarh hills and in the valleys of the Mor and Ajay rivers.

In the east the vegetation is characteristic of rice-fields in Bengal generally, species of *Aponogeton*, *Utricularia*, *Drosera*, *Dopatrium*, *Ilysanthes*, *Hydrolea*, *Sphenoclea*, and similar aquatic or palustrine genera being abundant. In the drier undulating country in the west the characteristic shrubs and herbs include species of *Wendlandia*, *Evolvulus*, *Stipa*, *Tragus*, *Perotis*, *Spermacoce*, *Zizyphus*, and *Capparis*. Around villages are the usual clumps of mangoes, palms, bamboos, and other trees, among which species of *Ficus*, jack, and *arjun* (*Terminalia Arjuna*) are often present. The District contains no Government forests; but in the west are forests containing *sāl* (*Shorea robusta*), *piār* (*Buchanania latifolia*), *dhau* (*Anogeissus latifolia*), *kend* (*Diospyros melanoxylon*), and *mahuā* (*Bassia latifolia*). Botany.

With the exception of a few leopards, big game has disappeared before the advance of cultivation. Fauna.

The climate is dry, and high day temperatures are a feature of the hot months. The annual rainfall averages 57 inches, of which 10·7 inches fall in June, 12·7 in July, 12·1 in August, and 9·9 in September. Destructive floods occurred in 1787 and 1806, and again in September, 1902, when the Mor, Brāhmanī, and Bānsloi rivers rose suddenly and overflowed the surrounding country, causing great damage to villages, houses, roads, and bridges. In June, 1902, a cyclone passed through the Rāmpur Hāt subdivision, which derailed and wrecked a passenger train, causing great loss of life. Climate, temperature, and rainfall.

At the beginning of the thirteenth century, Bīrbhūm was a History.

Hindu principality with its capital at RĀJNAGAR or Nagar, and it is recorded that the Pathān conquerors constructed a road from DEVĪKOT, in Dinājpur, through Gaur to Nagar. This place was sacked by the Oriyās in 1244. The *zamīndāri* of Bīrbhūm first appears as a separate fiscal unit at the beginning of the eighteenth century, when a *sanad* was granted by Jafar Khān, Nawāb of Murshidābād, to Asad-ullah Pathān, to hold it as a kind of military fief. His family had probably reigned in the country since the fall of the Pathān dynasty of Bengal in 1600. The *zamīndāri*, which at that time included a great part of the Santāl Parganas and extended over 3,858 square miles, passed into the hands of the British in 1765, but it was not until 1787 that the Company assumed the direct government of Bīrbhūm. Meanwhile the District was overrun by marauders from the western highlands of Chotā Nāgpur, who formed large permanent camps, intercepted the revenues on the way to the treasury, and brought the commercial operations of the Company to a standstill. The Rājā could make no head against them, so that it became absolutely necessary for the British Government to interfere. The two border principalities of Bīrbhūm and Bānkurā were united into one District, and a large armed force was maintained to repress the bands of plunderers, who for some time continued their depredations. In 1788 the Collector had to call out the troops against a body 500 strong, who had made a descent on a market town within two hours' ride of his head-quarters, and murdered or frightened away the inhabitants of between 30 and 40 villages. In the following year the inroads assumed even more serious proportions, the plunderers going about sacking villages 'in parties of three or four hundred men well found in arms.' The population was panic-stricken, the large villages and trading dépôts were abandoned; and the Collector was compelled hastily to recall the outposts stationed at the frontier passes, to levy a militia supplementing the regular troops, and to obtain reinforcements of sepoys from the neighbouring Districts. The banditti could not hold out against the forces thus brought against them, and were driven back into the mountains. Order was soon established, and the country recovered with amazing rapidity from the disastrous effects of the ravages to which it had been exposed. The tranquillity of the District has since remained undisturbed, except during the Santāl insurrection of 1855. *See* SANTĀL PARGANAS.

In 1765 the District was more than twice its present size. In the beginning of the nineteenth century the *zamīndāri* of

Bishnupur was formed into the independent Collectorate of Bānkurā, and some years later considerable tracts to the west were cut off and now form part of the Santāl Parganas.

The population of the present District area, which was 851,235 in 1872, fell to 792,031 in 1881, but rose to 798,254 in 1891 and to 902,280 in 1901. The decrease previous to 1881 was due to the ravages of the 'Burdwān fever,' from which the District formerly suffered severely, and which was still prevalent in portions of the head-quarters subdivision in 1891. The District is now one of the healthiest in Bengal. Mortality is chiefly due to fever; cholera breaks out occasionally in the south-eastern *thānas*, but there have been no serious epidemics. Leprosy is very prevalent, the number of males afflicted amounting in 1901 to 3·21 per 1,000 of the population. This District and Bānkurā enjoy the unenviable notoriety of harbouring a greater number of lepers in proportion to their population than any other tract in India. The people.

The principal statistics of the Census of 1901 are shown below:—

Subdivision.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Sūri	1,107	1	1,981	535,928	484	+ 14·0	44,352
Rāmpur Hāt	645	...	1,336	366,352	568	+ 11·7	25,695
District total	1,752	1	3,317	902,280	515	+ 13·0	70,047

The only town is SŪRI, the head-quarters. The increase of population at the Census of 1901 was most marked in the south, where it represents a recovery from the unhealthiness of the previous decade, and in the Murarai *thāna*, in the north, where there has been a considerable settlement of Santāls. The Rāmpur Hāt subdivision possesses a fertile soil, and is also tapped by the railway, and the District as a whole is now the most progressive in the Burdwān Division. The Santāl settlers are mostly cultivators; the District also receives a large number of labourers, shopkeepers, peons, &c., from Shāhābād and the United Provinces. On the other hand, many of its inhabitants emigrate to Assam as tea-garden coolies. The dialect spoken is that known as Rārhī *boli* or Western Bengali. Of the total population, 657,684 are Hindus, 201,645 Muhammadans, and 42,019 Animists. Most of the Animists are found among the Santāls, who number 47,000.

Castes and occupations.

Among Hindus, the most prominent castes are the semi-aboriginal Bāgdis (88,000) and the Sadgops (84,000). The Musalmāns are mostly Shaikhs (183,000), though there are also some Pathāns (12,000), Saiyids, and Jolāhās. Of the total population, 69 per cent. are supported by agriculture, 11·7 by industries, 0·4 by commerce, and 1·5 by the professions.

Christian missions.

A Baptist mission, founded at the beginning of the nineteenth century by Dr. Carey, as a branch of the Serampore Mission, maintains a girls' school in Sūri and a few village schools. A Methodist Episcopal mission works at Bolpur on the East Indian Railway. Christians in 1901 numbered 819, of whom 709 were natives.

General agricultural conditions and principal crops.

The alluvial tract to the east is well watered and extremely fertile, but the western uplands are arid and barren. The chief agricultural statistics for 1903–4 are shown below, in square miles:—

Subdivision.	Total.	Cultivated.	Cultivable waste.
Sūri	1,107	596	89
Rāmpur Hāt . .	645	460	52
Total	1,752	1,056	141

Of the cultivated area, it is estimated that 37 square miles are twice cropped. Rice is the main staple, covering 999 square miles. Nine-tenths of the rice crop is of the variety known as *āman* (winter rice), which is sown in May and June and reaped in November and December. Other food-crops are relatively unimportant, but some maize, gram (*Cicer arietinum*), and sugar-cane are grown. Orchards and garden produce cover 39 square miles, and mulberry is extensively grown in the east in connexion with the silk industry.

Improvements in agricultural practice.

The area under cultivation has been greatly extended in recent years by the Santāls, who have reclaimed large tracts of jungle land in the west of the District. Little advantage has been taken of the Land Improvement and Agriculturists' Loans Acts, except in 1896–7, a year of poor crops, when Rs. 14,000 was advanced under the former Act.

Cattle.

Pasturage is scarce in the east of the District, and the cattle are for the most part poor and ill-fed. A dairy farm has been started at Sūri, and a cattle and produce show is held there in January or February. Some English and Hissār bulls have been imported by the District board and the Sūri cattle show committee.

A good deal of irrigation is effected, by means of reservoirs, in the undulating country in the west; and sugar-cane, oilseeds, flax, and vegetables are watered from tanks or rivers by means of lifts. Irrigation.

Coal is mined on a small scale at Arang on the banks of the Ajay. Iron ores occur in beds towards the base of the laterite in the west; nodular limestone, mica, pottery clay, granite, and sandstone are also found. Minerals.

Cotton-weaving is carried on at Supur, Raipur, and Ilām Bāzār in the Bolpur *thāna*, and at Alunda and Tāntipāra in the Sūri *thāna*, where good cloths and sheets are manufactured. A little silk is woven at Baswa, Bishnupur, Karidha, Tāntipāra, and a few other places, while silk-spinning is an important industry in the east of the District, a factory at GANUTIA, which originally belonged to the East India Company and is now in the possession of the Bengal Silk Company, being the head-quarters of the industry. The company owns another factory at Bhadrapur and out-factories at Kotāsur and Kaytha, and employs about 1,000 spinners. Lac bracelets, ink-pots, rulers, and other articles are made at Ilām Bāzār. Brass-ware is made at Dubrājpur, Tikarbetha, Ilām Bāzār, Hāzratpur, and Nalhāti, and iron-ware at Dubrājpur, Kharun, Lokpur, Rājnagar, and Rāmpur Hāt. Arts and manufactures.

The chief exports are rice and raw silk; and the chief imports are salt, cotton, cotton thread, European cotton piece-goods, pulses, tobacco, kerosene oil, and coal. The principal trading centres are BOLPUR, SAINTHIĀ, RĀMPUR HĀT, NALHĀTI, Murarai, DUBRĀJPUR, Purandarpur, and Ahmadpur. Commerce.

The loop-line of the East Indian Railway intersects the District from south to north, and a branch from Nalhāti runs eastward to Azīmganj. The chord-line of the same railway passes about 10 miles south of the District, and a line has been surveyed to connect Sainthiā station on the loop-line with Andāl on the chord passing through Sūri and Dubrājpur. In addition to 140 miles of village tracks, the District contains 126 miles of metalled and 302 miles of unmetalled roads maintained by the District board, the most important being those from Kātwa through Sūri to Dumkā and those connecting Sūri with the railway. Railways and roads.

The District has not suffered from famine since 1874, but in 1885 there was some local scarcity and Government relief was necessary. Famine.

For administrative purposes Bīrbhūm is divided into two subdivisions, with head-quarters at SŪRI and RĀMPUR HĀT. District subdivi-

sions and staff. The District Magistrate-Collector has at Sūri a staff of three Deputy-Magistrate-Collectors; the subdivisional officer at Rāmpur Hāt is assisted by a Sub-Deputy-Collector.

Civil and criminal justice. Subordinate to the District Judge for the disposal of civil work are a Subordinate Judge, with powers of a Small Cause Court judge up to Rs. 500, and six Munsifs stationed at Sūri, Dubrājpur, Bolpur (2), and Rāmpur Hāt (2). The criminal courts are those of the Sessions Judge, the District Magistrate, and the above-mentioned magistrates. Formerly the headquarters of wandering bands of banditti, Bīrbhūm is now one of the quietest Districts in Bengal. Crime is light, but dacoities are not infrequent, a local gang of Muhammadans being responsible for twenty-three dacoities between 1896 and 1904.

Land revenue. The land revenue demand in 1903-4 was 10·09 lakhs, payable by 1,060 estates. With the exception of five small estates paying a total revenue of Rs. 2,000, the whole of the District is permanently settled. The incidence is only Rs. 1-7-5 per cultivated acre, or less than half that prevailing in the neighbouring District of Burdwān. The *ghātwāli* rent-free tenures which formerly existed in this District were resumed by Government in 1901. They are described in the article on BĀNKURĀ DISTRICT. Ordinary rice lands are rented at from Rs. 3 to Rs. 9 per acre, and sugar-cane lands at Rs. 9 and upwards, while as much as Rs. 15 is paid for good vegetable lands and Rs. 80 for plots on which betel-leaf (*Piper Betle*) is grown. The ryots frequently sublet their holdings for a share in the produce.

Collections on account of land revenue and of total revenue (principal heads only) are shown below, in thousands of rupees:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . . .	8,03	10,21	10,09	10,08
Total revenue . .	11,31	14,48	16,45	17,07

Local and municipal government. Outside the municipalities of SŪRI and RĀMPUR HĀT, local affairs are managed by the District board, to which subdivisional local boards are subordinate. The income of the District board in 1903-4 was Rs. 1,33,000, of which Rs. 76,000 was derived from rates; and the expenditure was Rs. 1,40,000, of which Rs. 83,000 was spent on public works.

Police and jails. The District contains 9 police stations and 5 outposts. The force subordinate to the District Superintendent in 1903 con-

sisted of 2 inspectors, 27 sub-inspectors, 13 head constables, and 235 constables; in addition to which there was a rural police of 236 *daffadārs* and 3,144 *chaukīdārs*. The cost of the regular force was Rs. 68,000, and there was one policeman to every 11 square miles and to every 5,674 persons. The District jail at Sūri has accommodation for 290 prisoners, and a subsidiary jail at Rāmpur Hāt for 18.

Education. In 1901 the proportion of literate persons was 7·7 per cent. (15·3 males and 0·4 females). The total number of pupils under instruction increased from about 12,000 in 1881 to 24,043 in 1892–3 and 27,303 in 1900–1. In 1903–4, 27,210 boys and 1,557 girls were at school, being respectively 40·7 and 2·2 per cent. of the children of school-going age. The number of educational institutions, public and private, in that year was 1,046: namely, one Arts college, 52 secondary, 952 primary, and 41 special schools. The expenditure on education was Rs. 1,61,000, of which Rs. 11,000 was met from Provincial funds, Rs. 25,000 from District funds, Rs. 500 from municipal funds, and Rs. 91,000 from fees. These institutions include 15 Santāl schools attended by about 400 pupils of aboriginal origin.

Medical. In 1903 the District contained 8 dispensaries, of which 3 with 25 beds had accommodation for in-patients. The cases of 35,000 out-patients and 211 in-patients were treated during the year, and 2,391 operations were performed. The expenditure was Rs. 12,000, of which Rs. 400 was met from Government contributions, Rs. 3,000 from Local and Rs. 1,200 from municipal funds, and Rs. 4,000 from subscriptions. In addition, a sum of Rs. 20,000 received on behalf of the Chetlā dispensary was invested.

Vaccination. Vaccination is compulsory only within Sūri municipality. In 1903–4 the number of successful vaccinations was 27,500, or 31 per 1,000 of the population.

[Sir W. W. Hunter, *Statistical Account of Bengal*, vol. iv (1876), and *Annals of Rural Bengal* (1868); E. G. Drake-Brockman, *Notes on the Early Administration of the Bīrbhūm District* (Calcutta, 1898).]

Sūri Subdivision.—Southern subdivision of Bīrbhūm District, Bengal, lying between 23° 33′ and 24° 7′ N. and 87° 10′ and 87° 58′ E., with an area of 1,107 square miles. The eastern part of the subdivision presents the appearance of the ordinary alluvial plains of Lower Bengal; but towards the west the ground rises, and this portion consists of a rolling country with undulating uplands of laterite. The population in 1901

was 535,928, compared with 470,229 in 1891, the density being 484 persons per square mile. It contains one town, SŪRI (population, 8,692), the head-quarters; and 1,981 villages.

Rāmpur Hāt Subdivision.—Northern subdivision of Bīrbhūm District, Bengal, lying between 23° 52′ and 24° 35′ N. and 87° 35′ and 88° 2′ E., with an area of 645 square miles. The subdivision is a long and somewhat narrow tract, running up between Murshidābād District and the Santāl Parganas. It possesses a fertile soil, except to the west, where there is a rolling country with tracts unfit for cultivation, and in the Murarai *thāna* to the north, where the land is comparatively infertile and there is a large proportion of uncultivable waste. The population in 1901 was 366,352, compared with 328,025 in 1891, the density being 568 persons per square mile. It contains 1,336 villages, of which RĀMPUR HĀT is the head-quarters; but no town.

Bakreswar.—A group of hot sulphur springs, in the head-quarters subdivision of Bīrbhūm District, Bengal, situated in 23° 53′ N. and 87° 22′ E., on the banks of the Bakreswar stream, about a mile south of Tāntipāra village. The temperature of the water varies from 128° to 162°. About 120 cubic feet of water per minute are ejected from the hottest well. A group of temples to Siva, mostly modern, are much resorted to by pilgrims. Bakreswar is also a *pīthasthān* or sacred place, where the forehead of the goddess Satī is said to have fallen.

Bhadrapur.—Village in the Rāmpur Hāt subdivision of Bīrbhūm District, Bengal, situated in 24° 16′ N. and 87° 57′ E., 4 miles south of Nawāda station on the East Indian Railway. Population (1901), 352. The village is interesting as containing the ruins of the palace of Mahārājā Nand Kumār (Nuncomar). There is a silk factory here.

Bolpur.—Village in the head-quarters subdivision of Bīrbhūm District, Bengal, situated in 23° 40′ N. and 87° 42′ E., on the East Indian Railway, 99 miles from Howrah. Population (1901), 3,131. Bolpur is the most important trading centre in the District.

Dubrājpur.—Village in the head-quarters subdivision of Bīrbhūm District, Bengal, situated in 23° 48′ N. and 87° 24′ E., 14 miles south-west of Sūri. Population (1901), 6,715. Dubrājpur is surrounded by tanks, the banks of which are planted with toddy palms (*Borassus flabellifer*). South of the village huge picturesque rocks of granite and gneiss (composed of glassy quartz, pink and grey felspar, and black mica) crop

up over an area of a square mile. In the centre is a block of granite, 60 feet in height, united to a mass of gneiss, which adheres to it at an angle of 45°. The summit commands a fine view of the surrounding country as far as Parasnāth and the Rājmahāl and Pānchet hills. A flat-roofed temple has been built on one of these granite rocks, and the whole block is worshipped by the Brāhmans as Mahādeo. The village is an important trade centre, and *tasar* silk, brass, and iron-ware are manufactured.

Ganutia.—Village in the Rāmpur Hāt subdivision of Bīrbhūm District, Bengal, situated in 23° 52′ N. and 87° 50′ E., on the north bank of the Mor river. Population (1901), 407. Ganutia is the centre of the silk industry of Bīrbhūm. A factory was established here in 1786 by a Mr. Frushard. After various vicissitudes, which are related in Hunter's *Annals of Rural Bengal*, this gentleman succeeded in converting the forest and waste land around Ganutia into thriving and prosperous villages, and founded factories throughout the north-east of Bīrbhūm. His head factory, which is the most imposing edifice in the District, is now the property of the Bengal Silk Company. The industry has seriously declined of late years and now employs only about 500 persons.

Ilām Bāzār.—Village in the head-quarters subdivision of Bīrbhūm District, Bengal, situated in 23° 38′ N. and 87° 32′ E., on the banks of the Ajay river. Population (1901), 1,815. It is the seat of a considerable trade, and is celebrated for its manufacture of lac ornaments and toys, *tasar* silk, and brass-ware.

Kenduli.—Village in the head-quarters subdivision of Bīrbhūm District, Bengal, situated in 23° 38′ N. and 87° 26′ E., on the north bank of the Ajay river. Population (1901), 774. It was the birthplace of Jayadeva, author of the celebrated *Gītagovinda*, a Sanskrit poem in praise of Krishna. An annual fair in honour of Jayadeva is held in the village on the last day of Pūs (the middle of January), which is attended by 50,000 persons.

Lābpur.—Village in the head-quarters subdivision of Bīrbhūm District, Bengal, situated in 23° 49′ N. and 87° 49′ E., on the Sūri-Kātwa road, 7 miles east of Ahmadpur station on the East Indian Railway. Population (1901), 750. It contains a temple of the goddess Phullarā, where there is a curious practice of feeding jackals. Lābpur is a *pithasthān* or sacred place, where the lips of the goddess Satī are said to have fallen.

Mayūreswar.—Village in the Rāmpur Hāt subdivision of Bīrbhūm District, Bengal, situated in 23° 59′ N. and 87° 46′ E., on the road from Sūri to Murshidābād. Population (1901), 2,535. The inhabitants are principally engaged in rearing silk-worms, and in silk-spinning and weaving.

Nalhāti.—Village in the Rāmpur Hāt subdivision of Bīrbhūm District, Bengal, situated in 24° 18′ N. and 87° 50′ E., on the East Indian Railway, 145 miles from Howrah. Population (1901), 2,636. Nalhāti is said to have been the capital of a traditional Hindu monarch, Rājā Nala, and traces of the ruins of his palace are pointed out on a hillock called Nalhāti Zila, close to the village. Another legend connects the name with a temple to Nalateswarī, and it is here that the *nala* or throat of the goddess Satī is said to have fallen. The Azīmganj branch of the East Indian Railway joins the loop-line at Nalhāti, and it is an important centre of the rice trade.

Rājnagar Village (or Nagar).—Village in the head-quarters subdivision of Bīrbhūm District, Bengal, situated in 23° 57′ N. and 87° 19′ E. Population (1901), 3,845. Rājnagar was the capital of the Hindu princes of Bīrbhūm prior to the conquest of Bengal by the Muhammadans in 1203. In 1244 it was plundered by the Oriyās. The site is now covered with crumbling houses, mouldering mosques, and weed-choked tanks; the ancestral palace of its Rājās has fallen into ruins. North of the town and buried in dense jungle are the remains of an ancient mud fort, said to have been built in the eighteenth century as a defence against the Marāthās. The famous Nagar wall or entrenchment, extending in an irregular and broken line around the town for a distance of 32 miles, is now rapidly decaying. The *ghāts* or gateways have long ceased to be capable of defence, and many parts of the wall have been washed almost level with the ground by the annual rains. The place is locally famous for its mangoes.

[*Archaeological Survey Reports*, vol. viii, pp. 146–7.]

Rāmpur Hāt Village.—Head-quarters of the subdivision of the same name in Bīrbhūm District, Bengal, situated in 24° 10′ N. and 87° 47′ E., on the East Indian Railway, 136 miles from Howrah. Population (1901), 3,908. A great part of the trade of the Santāl Parganas passes through the village. It contains the usual public offices; the sub-jail has accommodation for 18 prisoners.

Sainthiā.—Village in the head-quarters subdivision of Bīrbhūm District, Bengal, situated in 23° 57′ N. and 87° 41′ E., on the East Indian Railway, 119 miles from Howrah. Popula-

tion (1901), 2,622. The village, which lies on the Mor river, is connected with Sūri by a good road. It is an important trade centre.

Sūri Town.—Head-quarters of Bīrbhūm District, Bengal, situated in 23° 54′ N. and 87° 32′ E., on the summit of a gravel ridge, 3 miles south of the Mor river. Population (1901), 8,692. Sūri was constituted a municipality in 1876. The income during the decade ending 1901–2 averaged Rs. 11,000, and the expenditure Rs. 10,000. In 1903–4 the income was Rs. 16,000, of which Rs. 5,000 was derived from a tax on persons (or property tax), and Rs. 3,000 from a conservancy rate; and the expenditure was Rs. 14,000. The town contains the usual public offices; the District jail has accommodation for 290 prisoners, the principal industries being oil-pressing, aloe-pounding, *newār* and carpet-making. A large cattle and produce show is held annually in January or February, at which prizes are given. Palanquins and furniture are made in the town, and cotton- and silk-weaving are carried on in the villages of Alunda and Karidha in the neighbourhood.

Surul.—Village in the head-quarters subdivision of Bīrbhūm District, Bengal, situated in 23° 40′ N. and 87° 40′ E., in the south of the District, about 5 miles north of the Ajay river. Population (1901), 1,558. The village is noteworthy as the site of an old commercial residency, formerly the centre of the Company's trade in Bīrbhūm. During the latter years of the eighteenth century, from 4½ to 6½ lakhs of rupees was annually expended on the mercantile investment at Surul. The first Commercial Resident, Mr. Cheap, who exercised magisterial powers, has left behind him the name of 'Cheap the Magnificent.' He introduced indigo cultivation into the District, improved the manufacture of sugar by means of apparatus brought from Europe, and established a private firm, which flourished until within the last few years. When the Company gave up their commercial dealings, the residency at Surul was abandoned. The ruins crown the top of a small hill. The trade in indigo and sugar is now extinct.

Bānkurā District.—District in the Burdwān Division of Bengal, lying between 22° 38′ and 23° 38′ N. and 86° 36′ and 87° 46′ E., with an area of 2,621 square miles. The Dāmodar river on the north separates it from Burdwān; while it is bounded on the south by Midnapore, on the east by Burdwān and Hooghly, and on the west by Mānbhūm.

Boundaries, configuration, and hill and river systems.

The District forms part of the eastern fringe of the Chotā Nāgpur plateau. In the north and west it consists of broken

rocky country with isolated spurs, of which the highest are the SUSUNIA hill (1,442 feet) and Bihāri Nath. To the east the elevation is lower; the country has an undulating park-like aspect, and eventually merges in the alluvial plains of the Gangetic delta.

The chief rivers are the Dāmodar, which forms the northern boundary, and the Dwārkeswar or Dhalkisor, which traverses the centre of the District. They are insignificant streams during the hot season, but in the rains become navigable by boats of 50 to 60 tons burden. During this season they sometimes rise so suddenly, owing to the rapid drainage from the neighbouring hills, that a head-wave is formed, called the *hurpā bān*, not unlike the bore or tidal wave in the Hooghly, which often causes loss of life and great destruction of property. The Silai and Kāsai cross the south of the District.

Geology. Gneiss appears in the western hills, especially in the neighbourhood of Bānkurā town; and in the north-west metamorphic rocks stand up boldly in well-marked hornblendic ridges, the general strike of which is nearly east and west. South of Bānkurā town veins of granite occur, especially in the metamorphic rocks along the Silai river, cutting through the gneissic rocks. The Gondwāna system is represented in the north, on the banks of the Dāmodar river, by beds which belong to the Rānīganj group and may contain useful seams of coal. Elsewhere the surface consists of gently undulating ground, covered by laterite and alluvium. The former is invariably detrital, and contains such quantities of quartz pebbles as to resemble a coarse ferruginous conglomerate. The laterite is extensively overlaid by a sandy clay, which is often intermixed with *kankar*[1].

Botany. The uplands are bare or clothed with a scrub jungle of *Zizyphus* and other thorny shrubs, which sometimes gives way to *sāl* (*Shorea robusta*) forest, while the low hills are covered by a dense mixed forest, which contains species of *Miliusa*, *Schrebera*, *Schleichera*, and *Diospyros*. In the low-lying land to the east, the swamp vegetation of the West Bengal rice plain is found. In the neighbourhood of villages are thickets, in which the most common species are bamboos, *pīpal* (*Ficus religiosa*), banyan (*Ficus indica*), red cotton-tree (*Bombax malabaricum*), *Mangi-*

[1] *Memoirs, Geological Survey of India*, vol. i, pt. iii, 'The Geological Structure and Physical Features of the Districts of Bānkurā, Midnapore, and Orissa'; also vol. iii, pt. i, 'The Raniganj Coal-field,' by W. T. Blanford. This section was supplied by Mr. P. N. Bose, of the Geological Survey of India.

fera, *Moringa*, and *Odina Wodier*. The District contains no Government forests.

Fauna. Black bears are common in the western jungles; and leopards, hyenas, wolves, deer, and wild hog are also occasionally found. Pythons are often met with in the hills, while the cobra, *karait*, and other deadly snakes are common.

Temperature and rainfall. Exceptionally high day temperatures are a feature of the hot months, the mean maximum rising to 93° in March and 102° in April. The mean temperature for the year is 80°. The annual rainfall averages 56 inches, of which 10·4 inches fall in June, 12·7 in July, 12·4 in August, and 8·2 in September.

History and archaeology. In prehistoric times Bānkurā formed part of the old kingdom of Karna Suvarna, and subsequently of the Rārh division of Bengal. The local legends centre round Bishnupur. Here was founded, in the beginning of the eighth century A.D., one of the eight petty dynasties of Hindu rulers who formerly held the Bengal frontier against the jungle tribes of the western plateau. Under Muhammadan rule the Bishnupur family appears sometimes as the enemy, sometimes as the ally, and sometimes as the tributary of the Musalmān Nawāb. In the rent-roll of Todar Mal in 1582 the country held by the family was assessed at a fixed tribute. In 1715, under the administration of Jafar Khān, it was reduced to the status of a *zamīndāri*. It was at that time included within the *chakla* of Burdwān, and was with that District ceded to the East India Company in 1760. From that date the fortunes of the family rapidly declined. They were impoverished by Marāthā raids, and the famine of 1770 left few inhabitants to till the soil. Meanwhile the British Government added to their public burdens and treated them as mere land stewards, and thus completed their ruin. The present representative of the family is dependent for his subsistence on a few *debottar* estates. When the Bishnupur *zamīndāri* first passed into the hands of the British, it was administered from Murshidābād; but its lawless condition soon necessitated a more direct administration, and in 1787 it was constituted, with Bīrbhūm, into a separate District. In 1793 it was separated from Bīrbhūm and added to Burdwān; but in 1805 it was incorporated with the newly constituted JUNGLE MAHĀLS, of which it continued to form part until 1833. Bānkurā was created a separate revenue District in 1835; but discrepancies long existed between the revenue, judicial, and police jurisdictions, which were not completely removed until 1879. Interesting archaeological remains are found at BISHNUPUR.

The people.

The population of the present District area increased steadily from 968,597 in 1872 to 1,041,752 in 1881, to 1,069,668 in 1891, and to 1,116,411 in 1901. The undulating uplands are well drained and form one of the most salubrious tracts in Bengal. The Bishnupur subdivision is less healthy, and here the notorious 'Burdwān fever' formerly caused great ravages. Mortality is chiefly due to fever. Cholera is always present in a sporadic form and sometimes becomes epidemic. Leprosy is more prevalent than in any other part of India, and more than 3 males per 1,000 were recorded as suffering from it in 1901.

The principal statistics of the Census of 1901 are shown in the following table:—

Subdivision.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Bānkurā . .	1,921	1	4,069	712,055	371	+ 2·85	57,926
Bishnupur .	700	2	1,523	404,356	578	+ 7·17	45,753
District total	2,621	3	5,592	1,116,411	426	+ 4·37	103,679

The District is less densely peopled than any other in the Burdwān Division. The population is very sparse in the south and west, where the land is undulating, rocky, and barren; farther east, in the Bishnupur subdivision, the soil is alluvial and the density is much greater. The increase of population at the last Census is less than half what it would have been but for the large emigration which takes place. The emigrants are for the most part hardy aborigines from the south and west of the District, who are attracted by the high wages paid in the coal-fields of Asansol and in the Assam tea gardens, or who supplement their scanty harvests by working as labourers in the metropolitan Districts in the off-season. The three towns are BĀNKURĀ, the head-quarters, BISHNUPUR, and SONĀMUKHI. The vernacular of the District is the dialect known as Rārhi *boli* or Western Bengali, but Santālī is spoken by nearly 9 per cent. of the population. By religion 975,746 are Hindus, 51,114 Musalmāns, and 89,157 Animists. The last mentioned are chiefly Santāls of the head-quarters subdivision, who number altogether 106,000.

Castes and occupations.

The Musalmāns are almost all Shaikhs (44,000). Among Hindus the semi-aboriginal castes of Bauri (113,000) and Bāgdi (91,000) are largely represented, the former predominating in the west and the latter towards the east of the District. Brāh-

mans (93,000) and Telis (74,000) are also numerous. Of the total population, 60·7 per cent. are supported by agriculture, 15·9 per cent. by industries, 0·7 by commerce, and 2·2 by the professions. The proportion of agriculturists is considerably below the general average for Bengal.

Christian missions.

Christians number 363. A Wesleyan mission, which commenced work in 1877, maintains several schools. It has opened classes in Bānkurā town to teach carpentry, weaving, and basket-making, and also built a public library in 1899 and a leper asylum with accommodation for 72 inmates in 1902. An Armenian mission possesses an orphanage near Mejia.

General agricultural conditions and principal crops.

The alluvial soil in the east of the Bishnupur subdivision is fertile; elsewhere the valleys are generally rich and productive, while the higher lands are comparatively barren, and are for the most part covered with jungle.

The chief agricultural statistics for 1903–4 are shown in the following table, in square miles:—

Subdivision.	Total.	Cultivated.	Cultivable waste.
Bānkurā	1,921	451	865
Bishnupur	700	195	433
Total	2,621	646	1,298

NOTE.—It is estimated that 51 square miles are twice cropped.

The chief crop is rice, covering 535 square miles. By far the most important harvest is the *āman* or winter rice, which is sown in April or May, after three or four ploughings, transplanted in July or August, and reaped in December. The *aus* or early rice is sown broadcast in May and reaped in September. Sugar-cane covers 20 square miles; maize is cultivated on the higher lands, and oilseeds, pulses, wheat, flax, and cotton are also grown. Indigo, formerly an important crop, has now almost disappeared. Rich black mud, scraped from the bottom of tanks or reservoirs, is used as manure mixed with ashes and stubble, while for the more valuable crops cow-dung is added. In the case of lands growing sugar-cane and other exhausting staples, rotation is observed, sugar-cane being generally followed by *til* (*Sesamum indicum*), after which a crop of early rice is taken, followed by mustard and peas mixed.

Improvements in agricultural practice.

The cultivated area is being gradually extended. During the last decade Rs. 62,000 was advanced under the Land Improvement and Agriculturists' Loans Acts for the excava-

tion and re-excavation of irrigation tanks and other miscellaneous improvements.

Cattle. The local cattle are weak and poor, though the pasturage is ample except in the east of the District.

Irrigation. Irrigation is necessary everywhere except in the low country to the east, and it is estimated that one-third of the cultivated area is artificially irrigated. The usual method is to throw a dam across a watercourse, but wells and tanks are also utilized.

Mines and minerals. There are two small coal-mines in the north of the District, the output in 1903–4 being 10,634 tons. Ferruginous laterite is common, and the quartz, sandstone, trap, gravel, and clay which it produces are largely utilized for road-making and brick-burning. Building stone exists in unlimited quantities in the hills. A white lithomarge is obtained under the laterite at a point about 12 miles north-east of Bānkurā town. Gold occurs in small quantities in the sands of the Dhalkisor and Kāsai rivers.

Arts and manufactures. Silk-spinning, silk- and cotton-weaving, the manufacture of brass and bell-metal ware, and the preparation of shellac are the principal industries. Bishnupur town contains a large weaving population, and is noted for its prettily embroidered scarves and fine silk cloth. *Tasar* silk is manufactured at Bānkurā town, Bishnupur, and Bīrsinghpur, and coarse cotton cloths at Bānkurā town, Gopīnāthpur, Barjorā, Rājgrām, and Bīrsinghpur, though they are being ousted from the market by cheap Manchester goods. Sonāmukhī is the centre of the shellac industry, but profits have been reduced by a fall in prices; about 5,000 maunds were sent to Calcutta in 1903–4. Other industries are the manufacture of gold and silver ornaments, iron implements, shell bangles, and lac beads.

Commerce. Rice, brass and bell-metal ware, silk stuffs, and hides are the chief articles of export, while the imports are tobacco, salt, spices, betel-nuts, poppy-heads, cotton and cotton twist, and European piece-goods. A small part of the trade passes through the Rānīganj and Pānāgarh stations of the East Indian Railway, but most of it is conveyed by the Midnapore-Jherriā extension of the Bengal-Nāgpur Railway, which runs through the District. There is some bullock-cart traffic with Ghātāl in Midnapore District.

Railways and roads. The East Indian Railway skirts the north-east boundary. The Midnapore-Jherriā extension of the Bengal-Nāgpur Railway, which passes through the District, has recently been opened, and a chord-line from Howrah to Bānkurā is under

consideration. The chief roads are the Rānīganj-Midnapore road maintained from Provincial funds, the old military grand trunk road which runs across the District, the Bānkurā-Burdwān road via Sonāmukhī, the Bānkurā-Raipur road, and the Bishnupur-Pānāgarh road. These are maintained by the District board, which has altogether under its charge 24 miles of metalled and 575 miles of unmetalled roads, in addition to 105 miles of village tracks.

River-borne traffic is practically confined to the floating of long rafts (locally called *murs*) down the Dāmodar; the trade is declining, owing to the supply of timber near the river having been practically exhausted.

Famine. The District is subject to drought and required Government relief in 1866 and 1874, and again in 1897. On the last occasion a daily average of 2,377 persons were employed on relief works, and 6,528 were gratuitously relieved from May to September at a cost of Rs. 1,20,000, of which Rs. 35,000 was contributed by the District board, while the balance was met by Government.

District subdivisions and staff. For administrative purposes the District is divided into two subdivisions, with head-quarters at BĀNKURĀ and BISHNUPUR. The District Magistrate has at Bānkurā a staff of three Deputy-Magistrate Collectors, while a fourth, assisted by a Sub-Deputy-Collector, is in charge of the Bishnupur subdivision.

Civil and criminal justice. For civil judicial work there are, subordinate to the District and Sessions Judge, a Sub-Judge and three Munsifs at Bānkurā, one Munsif at Khātra, one at Kotālpur, and two at Bishnupur, one of whom occasionally sits at Kotālpur. For many years past the District has been notorious as a centre of gangs of professional dacoits, one of which has been traced back as far as the Mutiny of 1857. These gangs, which mainly commit their crimes in the neighbouring Districts, are now being broken up.

Land revenue. Nearly the whole of the District, as at present constituted, was originally comprised in the Bishnupur *pargana*, which formed the estate of the Rājā. This was gradually broken up, owing to his unpunctuality in paying the land revenue; but in 1835-6, when Bānkurā was first constituted a separate Collectorate, it still contained only 56 estates. The number had by 1903-4 increased to 1,046, with a current demand of 4·74 lakhs. Of these, 983, paying a revenue of 4·73 lakhs, are permanently settled; 51 are temporarily settled estates, consisting of the surplus side lands of the Rānīganj-Midnapore

road; and 12 petty estates are the property of Government. The incidence of the land revenue is lower than elsewhere in the Division, being only R. 0-12-4 per cultivated acre. Tenures peculiar to the District are: *nāyābādi*, under which a tenant who takes up waste land is allowed to hold a certain portion of it free of rent or to obtain a deduction from the rent of the entire tenure; *jalsāsan*, an improvement lease under which a tenant constructs tanks or reservoirs on similar terms; and *itmāmdāri*, under which the tenure-holder enjoys the land rent free as remuneration for performing the duties of a rent-collector. *Ghātwāli* estates were formerly held for services rendered in defending the *ghāts* or frontier passes against the inroads of Marāthās and other plunderers. A quit-rent was originally payable to the Rājā of Bishnupur, and was included in the 'assets' of the Decennial Settlement, but on the Rājā's application these lands were subsequently resumed by Government. The *ghātwāls* have now been abolished and their estates settled. The maximum, minimum, and average rates per acre assessed on the *ghātwāli* lands were Rs. 7-8, Rs. 3-12, and Rs. 5-10 for low lands, and Rs. 12, Rs. 3, and Rs. 7-8 for high lands. Throughout the District generally, the average holding of a tenant is 6 acres. Rents rule higher in the east than in the west of the District, rice land bringing in from Rs. 3-12 to Rs. 6 an acre in the west, and from Rs. 4-8 to Rs. 7-8 in the Bishnupur subdivision. For *rabi* land the rates vary between Rs. 5-4 and Rs. 12 per acre, though as little as Rs. 3 per acre is paid for the less fertile lands in the north-west.

The collections of land revenue and of total revenue (principal heads only), in thousands of rupees, are shown in the following table:—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	4,59	4,58	4,60	4,79
Total revenue . .	7,16	8,11	9,45	10,02

Local and municipal government.

Outside the municipalities of BĀNKURĀ, BISHNUPUR, and SONĀMUKHĪ, local affairs are managed by the District board and the two subdivisional local boards subordinate to it. The income of the board in 1903-4 was Rs. 1,31,000, of which Rs. 52,500 was derived from rates; and the expenditure was Rs. 1,16,000, half of which was spent on public works and Rs. 40,000 on education.

The District contains 13 police stations and 9 outposts.

The force subordinate to the District Superintendent in 1903 consisted of 2 inspectors, 27 sub-inspectors, 25 head constables, and 321 constables. There was in addition a village police consisting of 250 *daffadārs* and 2,931 *chaukīdārs*, of whom 401 are remunerated by service tenures. The cost of maintenance of the regular force was Rs. 77,000, and there was one policeman to every 10·1 square miles and to every 4,327 persons. The District jail at Bānkurā has accommodation for 309 prisoners, and a subsidiary jail at Bishnupur for 15. Police and jails.

Education is making steady progress, and 9·3 per cent. of the population (18·3 males and 0·5 females) were literate in 1901. The total number of pupils under instruction increased from 38,512 in 1892–3 to 39,092 in 1900–1. In 1903–4 37,695 boys and 4,708 girls were at school, being respectively 45·7 and 5·5 per cent. of the children of school-going age. The number of educational institutions, public and private, in that year was 1,388: namely, one Arts college, 65 secondary, 1,241 primary, and 81 special schools. The last-mentioned institutions include two Santāl schools under mission management, and two aided music schools at Bānkurā and Bishnupur, at which both vocal and instrumental music are taught. The total expenditure on education was Rs. 1,84,000, of which Rs. 22,000 was met from Provincial funds, Rs. 38,000 from District funds, Rs. 2,000 from municipal funds, and Rs. 84,000 from fees. Education.

In 1903 the District contained 10 dispensaries, of which 3 had accommodation for 34 in-patients. The cases of 38,000 out-patients and 318 in-patients were treated, and 2,890 operations were performed. The expenditure was Rs. 11,000, of which Rs. 2,000 was met from Government contributions, Rs. 4,000 from Local and Rs. 3,000 from municipal funds, and Rs. 2,000 from subscriptions. A leper asylum is maintained at Bānkurā town. Medical.

Vaccination is compulsory only within municipal areas; it appears to be gaining ground, though the number of operations varies widely from year to year. In 1903–4 the number of persons successfully vaccinated was 38,450, representing 36 per 1,000 of the population. Vaccination.

[Sir W. W. Hunter, *Statistical Account of Bengal*, vol. iv (1876); and *Annals of Rural Bengal* (1868).]

Bānkurā Subdivision.—Western subdivision of Bānkurā District, Bengal, lying between 22° 38′ and 23° 38′ N. and 86° 36′ and 87° 25′ E., with an area of 1,921 square miles. The subdivision is composed of undulating country, covered

in places with low scrubby jungle and coppice wood. In the east it merges in the alluvial plain, but to the west the surface is more irregular, the undulations become more marked, and numerous isolated hills appear. The population in 1901 was 712,055, compared with 692,357 in 1891. It contains one town, BĀNKURĀ (population, 20,737), the head-quarters; and 4,069 villages. The subdivision, which lies on the fringe of the Chotā Nāgpur plateau, is much less fertile and less densely populated than the Bishnupur subdivision, and supports only 371 persons per square mile.

Bishnupur Subdivision.—Eastern subdivision of Bānkurā District, Bengal, lying between 22° 54′ and 23° 25′ N. and 87° 15′ and 87° 46′ E., with an area of 700 square miles. The subdivision is for the most part alluvial and flat, presenting the appearance of the ordinary paddy lands of Bengal; but the level surface is broken here and there by undulating slopes of infertile laterite. The population in 1901 was 404,356, compared with 377,311 in 1891, the density being 578 persons per square mile. It contains two towns, BISHNUPUR (population, 19,090), the head-quarters, and SONĀMUKHĪ (13,448); and 1,523 villages.

Bānkurā Town.—Head-quarters of Bānkurā District, Bengal, situated in 23° 14′ N. and 87° 4′ E., on the north bank of the Dhalkisor river. The population in 1901 was 20,737, of whom 19,553 were Hindus, 993 Muhammadans, and 158 Christians. Bānkurā is said to be named after an early settler named Banku Rai, whose descendants still reside in the town. The climate is dry and very healthy. The town lies on the grand trunk road from Calcutta to the north-west. The newly-constructed Midnapore-Jherriā branch of the Bengal-Nāgpur Railway passes through it, and a direct line from Howrah is contemplated. *Tasar* silk is largely manufactured. Considerable trade is carried on, the chief exports being rice, oilseeds, lac, cotton and silk cloth, silk cocoons, &c., and the imports English piece-goods, salt, tobacco, spices, coco-nuts, and pulses. Bānkurā was constituted a municipality in 1869. The income during the decade ending 1901–2 averaged Rs. 13,000, and the expenditure Rs. 12,000. In 1903–4 the income was Rs. 20,000, a third of which was derived from a tax on persons (or property tax); and the expenditure was Rs. 14,000. The town contains the usual public offices. The District jail has accommodation for 309 prisoners, the chief industries being mustard-oil pressing, brick-making, *darī*- and cloth-weaving, and cane and bamboo work. A leper asylum

built in 1902 is administered by the Wesleyan Mission; it has accommodation for 72 inmates.

Bishnupur Town.—Ancient capital of Bānkurā District, Bengal, situated in 23° 5′ N. and 87° 20′ E., a few miles south of the Dhalkisor river. Population (1901), 19,090. The family of the Rājās of Bishnupur, which was founded in the eighth century, was at one time one of the most important dynasties in Bengal; they were nominally tributary to the Muhammadan Nawābs, but frequently exercised independent powers. In the eighteenth century the family rapidly declined; they were impoverished by the ravages of the Marāthās, and the famine of 1770 depopulated their territory and completed their ruin. The estate was ultimately sold, in detached portions, for arrears of land revenue.

Ancient Bishnupur was, according to the native chronicles, a city 'more beautiful than the beautiful house of Indra in heaven.' It was surrounded by seven miles of fortifications, within which lay the citadel, containing the palace of the Rājās. The ruins are very interesting. Near the south gateway are the remains of an extensive series of granaries; and inside the fort, which is overgrown with jungle, lies an iron gun 10¼ feet long, the gift, according to tradition, of a deity to one of the Rājās. Within the boundaries of the fort are numerous brick temples covered with curious mouldings, representing birds, flowers, and other ornaments. The most important are the Jorbangala, the Rāshmancha, and the Malleswar temples.

At the present day Bishnupur is an important trading centre, the exports being rice, oilseeds, lac, cotton, silk cloth, and silk cocoons, and the imports English piece-goods, salt, tobacco, spices, coco-nuts, and pulses. It contains a large weaving population, and is a centre of the *tasar* silk industry, while it is also noted for its embroidered silk scarves and shawls. The grand trunk road from Calcutta to the north-west passes through the town, and it is a station on the newly constructed Midnapore-Jherriā branch of the Bengal-Nāgpur Railway. Bishnupur was constituted a municipality in 1863. The income during the decade ending 1901–2 averaged Rs. 6,700, and the expenditure Rs. 6,300. In 1903–4 the income was Rs. 13,000, of which Rs. 6,000 was derived from a tax on persons (or property tax), and Rs. 4,000 was a loan from Government. The expenditure in the same year was Rs. 8,000. The town contains the usual public offices; the sub-jail has accommodation for 15 prisoners.

[Sir W. W. Hunter, *Annals of Rural Bengal* (1868); *Archaeological Survey Reports*, vol. viii, pp. 203-6.]

Sonāmukhī.—Town in the Bishnupur subdivision of Bānkurā District, Bengal, situated in 23° 19′ N. and 87° 36′ E. Population (1901), 13,448. Sonāmukhī was formerly the site of a commercial residency and of an important factory of the East India Company, where weavers were employed in cotton-spinning and cloth-making. It is now the local centre of the shellac industry. It lies on the road between Bishnupur and Pānāgarh station on the East Indian Railway. It was constituted a municipality in 1886. The income during the decade ending 1901-2 averaged Rs. 5,300, and the expenditure Rs. 5,200. In 1903-4 the income was Rs. 6,000, mainly derived from a tax on persons (or property tax); and the expenditure was Rs. 5,000.

Susunia.—Hill in the head-quarters subdivision of Bānkurā District, Bengal, situated in 22° 43′ N. and 86° 49′ E., and rising to 1,442 feet above sea-level. It runs due east and west for 2 miles, and is covered with heavy tree jungle except on its south face, where it was formerly quarried for building stone.

Boundaries, configuration, and hill and river systems.

Midnapore District (*Medinipur*).—Southernmost District in the Burdwān Division of Bengal, lying between 21° 36′ and 22° 57′ N. and 86° 33′ and 88° 11′ E., with an area of 5,186 square miles. Midnapore is the largest and most populous of the Bengal Regulation Districts; and it is proposed to subdivide it into two Districts in order to ensure greater efficiency of administration. Its western boundary marches with Balasore District and the Mayūrbhanj Tributary State of Orissa and with the Singhbhūm and Mānbhūm Districts of Chotā Nāgpur, while its southern boundary is the coast-line of the Bay of Bengal. To the east the Hooghly river and its tributary the Rūpnārāyan separate it from the Twenty-four Parganas, Howrah, and Hooghly Districts, while on the north it is bounded by Bānkurā.

This extensive District comprises three tracts of well-marked characteristics: the north and west are of laterite formation, the east is deltaic, and the south is sea-board. The Contai and Tamlūk subdivisions, on the sea-coast and the estuary of the Hooghly, contain the mouths of the Rasūlpur and Haldī rivers. They are comparatively free from malaria and produce very rich crops of rice. The Ghātāl subdivision, farther north, slopes back from the bank of the Rūpnārāyan; the soil is a rich alluvium, but much of the area is liable to floods, and,

though excellent crops are reaped, the inhabitants suffer greatly from malaria. The head-quarters subdivision consists in the north and west of thinly wooded and rocky uplands forming part of the fringe of the Chotā Nāgpur plateau; here the climate is good, though the laterite soil is dry and infertile. Towards the east and south the level dips, and a swampy hollow is formed between the elevated country to the west and the comparatively high ground along the coast. The conditions in this tract are very similar to those in the Ghātāl subdivision, which it adjoins. In the north-west corner there are several hills over 1,000 feet in height, but the rest of the District is nearly level. The scenery is varied in the north and west, where there are extensive *sāl* forests and the country is undulating and picturesque.

The chief rivers are the HOOGHLY and its three tidal tributaries, the RŪPNĀRĀYAN, the Haldī, and the Rasūlpur. The Rūpnārāyan joins the Hooghly opposite Hooghly Point; its chief tributary is the Silai, flowing in a tortuous course through the north of the District and navigable as far as Ghātāl. The Haldī falls into the Hooghly opposite the northern point of Sāgar Island. Its principal tributaries are the Kāliāghai and the Kāsai, neither of which is navigable; the latter rises in Mānbhūm District and flows past Midnapore town. The Rasūlpur rises in the south of the District, and joins the Hooghly a little below Kedgeree and the Cowcolly lighthouse. The SUBARNAREKHĀ enters the District from Singhbhūm, and passes through the jungle tract of Western Midnapore into Balasore District; it is not navigable.

In the extreme north-west corner of the District there is a low ridge, formed of grey and bluish grey micacean schists with bands of a more igneous character. The plains are covered in the north and west by lateritic rocks, which gradually give way in the south and east to the ordinary alluvium of the Gangetic delta. At the surface the laterite invariably contains small rounded fragments of other rocks, and in places these become conglomeratic, pebbles of quartz coated with oxide of iron and rounded fragments of other rocks being frequently formed. Close to Midnapore town, where a section is exposed, more than 50 feet of solid laterite are seen superposed in large tabular masses upon a soft soapy greyish white and reddish clay, resembling the kaolin clays which result from the decomposition of felspathic rocks. Geology.

In land under rice cultivation are found the usual marsh weeds of the Gangetic plain and many sedges, while the surface Botany.

of ponds, ditches, and still streams is covered with aquatic plants. The homesteads are embedded in shrubberies of semi-spontaneous growth. Some species of figs, notably the *pīpal* and the banyan, make up, along with the red cotton-tree (*Bombax malabaricum*), *Mangifera*, *Moringa*, and *Odina Wodier*, the arborescent part of these thickets, in which numbers of *Phoenix dactylifera* and palmyra palms (*Borassus flabellifer*) are often present. Hedges and waste places are covered with climbing creepers and various milkweeds.

Fauna.

Bears and deer are still plentiful in the west, and leopards and hyenas are not uncommon. There are a few wild elephants and wolves, and a tiger is occasionally seen. Wild buffaloes were formerly common in the south, but these have disappeared with the extension of cultivation. Small game is plentiful, including wild geese, ducks, snipe, ortolans, teal, and hares; but, excepting the migratory birds, all game is decreasing. Snakes are numerous.

Climate, temperature, and rainfall.

The climate of the arid tract in the north and west is very different from that of the swamps in the east and south. The average mean temperature for the whole District is about 80°. The coast-line is wetter and cooler than the higher portion. In the north and west, where the surface is of red laterite and the hot westerly winds from Central India penetrate, exceptionally high day temperatures are a feature of the hot months, and the mean maximum temperature rises to 102° in April and May. The monthly rainfall averages less than an inch for November, December, January, and February, and between 1 and $1\frac{1}{2}$ inches in March and April, after which there is a rapid increase. The rainfall in June averages 9·80 inches, in July 12·42, in August 13·18, in September 9·04, and in October 4·43 inches. The annual total averages 59 inches.

Natural calamities.

The great cyclone of 1864 caused serious loss of life and property in the south-east; no less than 53,000 deaths were reported, and the returns were far from complete. The immediate losses were equalled, if not exceeded, by the mortality caused by the scarcity and pestilence that resulted from the destruction of the crops and the pollution of the drinking-water supply. Heavy storms, all causing more or less damage to life and property, have occurred on twelve other occasions during the last seventy years. In the alluvial tract the rivers frequently overflow their banks and cause widespread havoc to the crops; owing to silt the mouth of the rivers are obstructed, and large tracts of country remain submerged for weeks after a flood. In 1889 the Bengal Govern-

ment found it necessary to appoint a Commission to investigate the causes of the frequent occurrence of these floods, and as a result the cross-damming of tidal channels for agricultural purposes has been restricted.

The eastern portion of Midnapore originally formed part of the kingdom of Suhmā or Tāmralipta, the ancient name of Tamlūk, which is now the head-quarters of a subdivision on the Rūpnārāyan river. It derives its name from *tāmra* ('copper'), which was once an important article of export. The earliest traditional kings of Tamlūk were Kshattriyas of the Peacock dynasty, who were succeeded by Kaibarttas. The whole District, with Kalinga or Orissa, came under Buddhist influence in the fifth century B.C. Early in the fifth century A.D. the Chinese pilgrim Fa Hian spent two years at Tamlūk and thence took ship for Ceylon. Another Chinese pilgrim, Hiuen Tsiang, wrote of Tamlūk in the seventh century as still an important harbour, with 10 Buddhist monasteries containing 1,000 monks and a pillar of king Asoka. Midnapore District nearly coincides with the Muhammadan division known as *sarkār* Jaleswar, which had for its capital the town of that name now situated in Balasore District, and was included in Orissa at the time of Todar Mal's settlement in 1582. This *sarkār* paid to the Mughal emperor a revenue of $12\frac{1}{2}$ lakhs, but during the last half-century of Muhammadan rule the Marāthās collected the revenue from the southern portions of the District. History.

It was at Hijilī, at the mouth of the Rasūlpur river, that Job Charnock with a small force defended himself successfully in 1687 against an overwhelming army of Mughals, and it was from this place that he sailed to found Calcutta. The British occupation of the District dates from the year 1760, when Mīr Kāsim, who had been made Sūbahdār of Bengal by the British, assigned to the East India Company the three Districts of Burdwān, Midnapore, and Chittagong to meet its military expenses. By a subsequent treaty, dated July 10, 1763, Mīr Jafar, who had been reinstated in place of Mīr Kāsim, confirmed the cession of these Districts, which were then estimated to furnish nearly a third of the whole revenue of Bengal. As a result of the decisive battle of Buxar, the Dīwāni of Bengal, Bihār, and Orissa was conferred in perpetuity on the East India Company in 1765. The Orissa therein referred to included only the District of Midnapore and a part of Hooghly; Orissa proper was not conquered from the Marāthās until 1803. The principal officer of the

Company in this province was the Chief or Resident at Midnapore.

In the early years of British administration much trouble was given by the chiefs of the hilly country within as well as without the boundary, and frequent expeditions had to be made against them. The southern portion of the District, now the Tamlūk and Contai subdivisions, was at first administered by a Salt Agent and Collector at Hijilī. Tamlūk was transferred to Midnapore in 1789; but Hijilī remained a separate Collectorate up to 1836, when a quarter of it was amalgamated with Midnapore and the rest with Balasore. Dhalbhūm originally formed part of Midnapore, but it was transferred in 1833 to Mānbhūm and subsequently to Singhbhūm; in 1876, however, forty-five outlying villages were again included in Midnapore. In 1872 the *parganas* of Chandrakonā and Bardā were transferred from Hooghly District.

Archaeology. The principal object of archaeological interest is the temple at TAMLŪK, which is of Buddhist origin, but is now dedicated to the goddess Bargā-Bhīma, or Kālī. In the high lands there are various old *garhs* or forts of the petty jungle Rājās, of which little is left but the sites. Many of the large tanks are of great age, and some of the embankments constructed to restrain the rivers are anterior to the British occupation.

The people. The population fell from 2,542,920 in 1872 to 2,515,565 in 1881, but rose again to 2,631,466 in 1891 and to 2,789,114 in 1901. The decrease in 1881 was due to the prevalence of an epidemic of malaria known as the 'Burdwān fever,' but since that year there has been a steady increase. During the last decade there was an advance of about 6 per cent. Midnapore is now fairly healthy, with the exception of the low tracts of the Ghātāl subdivision and the centre of the District, where malaria is prevalent. Hepatitis is not uncommon, and elephantiasis exists in the swampy parts of the alluvial portion of the District. Cholera has diminished since the opening of the railway, as the pilgrims to and from Purī no longer throng the roads spreading the disease in their train.

The principal statistics of the Census of 1901 are shown in the table on the next page.

Five of the towns—GHĀTĀL, CHANDRAKONĀ, KHARAR, RĀMJĪBANPUR, and KHIRPAI—are situated in the north-east of the District, which suffered from the 'Burdwān fever' epidemic, and they have scarcely yet regained the population they then lost. The remaining towns are MIDNAPORE, the head-quarters station, and TAMLŪK. The pressure of popu-

lation is greatest along the banks of the Rūpnārāyan and the estuary of the Hooghly, the maximum density being found in the Tamlūk *thāna*, where there are 1,156 persons per square mile. Farther inland the climate is bad and the density gradually decreases. In the west the cultivable area is small, and the density steadily diminishes until, on the confines of Singhbhūm and Mayūrbhanj, it drops to 259 per square mile. The Contai subdivision is the most progressive part of the District, the increase being greatest in the Contai *thāna*, which in the course of ten years has added nearly a sixth to its population, and in the other three coast *thānas*. On the other hand, the Ghātāl subdivision and the Debrā, Sābang, and Nārāyangarh *thānas* in the head-quarters subdivision are decadent. This is due, not only to the prevalence of fever, but also to a movement of the population from the densely crowded and waterlogged tracts in the north-east and centre of the District to the newly reclaimed lands along the coast and tidal rivers in the Contai and Tamlūk subdivisions. There is a small loss by emigration. The railway has attracted coolies and employés, but it has also facilitated temporary migration to Calcutta and Hooghly. Of every 100 persons, 80 speak Bengali, 10 Oriyā, 3 Hindī, and the remainder other languages. Oriyā is spoken in the Contai subdivision and also in the western *thānas* of the head-quarters subdivision. Hindus number 2,467,047, or 88 per cent. of the total; Muhammadans, 184,958, or 7 per cent.; and Animists, 135,050, or 5 per cent. The Hindus and Muhammadans have increased slightly at the expense of the Animists, who are found only in the north and west of the District.

Subdivision.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Midnapore	3,271	1	3,782	1,277,749	391	+ 4.5	95,598
Ghātāl	372	5	1,042	324,991	874	− 0.9	38,100
Tamlūk	653	1	1,578	583,238	893	+ 9.0	92,139
Contai	849	...	2,062	603,136	710	+ 10.6	69,227
District total	5,186*	7	8,464	2,789,114	538	+ 6.0	295,064

* Includes 41 square miles returned as uninhabited river-beds.

The Kaibarttas are the great race or caste, numbering no less than 883,000, or nearly a third of the whole population. The Bāgdis (142,000), another aboriginal caste, who gave their name to the ancient Bāgri (South Bengal), are also Castes and occupations.

strongly represented; and so are the Sadgops (131,000), a cultivating branch of the Goālās. The Santāls (148,000) are numerous in the north-west of the District. Of the higher castes, Brāhmans (114,000) are more numerous than elsewhere in Bengal proper, and the Kāyasths with the Karans, the indigenous writer caste of Orissa, number 91,000. The Baishnabs (93,000) have considerably increased during the last decade, but the Tāntis or weavers have lost ground. Of the Muhammadans, 121,000 are Shaikhs and 22,000 are Pathāns. Agriculture supports 77 per cent. of the population, industry 10 per cent., and the professions 3 per cent. The population is more distinctively agricultural than in any other part of West or Central Bengal.

Christian missions.

The Christian population is increasing, and in 1901 numbered 1,974, of whom 1,545 were natives. The American Free Baptist Mission works among both the Bengalis and the Santāls; there is a small Roman Catholic mission to the Santāls; and Church of England missions are established at Midnapore town and Kharakpur.

General agricultural conditions and principal crops.

The new alluvium in the east and south produces abundant rice crops. In the west and north rice is grown in the depressions between successive ridges by terracing the slopes, and maize, millets, oilseeds, and pulses are grown on the uplands; but the crests of the ridges are very infertile. Along the sea-board and on the banks of tidal rivers and creeks, dikes are necessary to keep out the salt water, and similar embankments are erected to protect the lowlands in the interior from inundation by floods. The non-tidal rivers are dammed for irrigation purposes, so that the alluvial tract is covered with a network of embankments and cross-dams, which seriously impede the drainage, and in years of heavy rainfall large areas are waterlogged. The chief agricultural statistics for 1903-4 are shown below, in square miles:—

Subdivision.	Total.	Cultivated.	Irrigated from canals.	Cultivable waste.
Midnapore	3,271	1,876	130	243
Ghātāl	372	242	...	47
Tamlūk	653	376	15	171
Contai	849	633	...	89
Uninhabited river-beds	41	...	...	...
Total	5,186	3,127	145	550

The uncultivable area extends over no less than 1,509 square miles, chiefly in the rocky western uplands and on the sea-shore and in the big rivers.

The staple product is rice, which occupies nearly three-fourths of the cultivated area. The winter crop, comprising 93 per cent. of the total area under rice, is sown in the early part of the rainy season and reaped in November, December, and January. In the most highly cultivated parts the seed is first sown in nurseries, but in the low-lying lands it is sown broadcast. The autumn crop is sown broadcast on dry land in the months of April, May, and June, and reaped in August and September. The spring crop is sown broadcast after the rains, and is cut in March and April; it usually requires irrigation. The other crops are wheat, barley, peas, linseed, mustard, sesamum, sugar-cane, *pān* (*Piper Betle*), mulberry, jute, cotton, and indigo. Tobacco, turmeric, and market-garden produce are grown in small quantities on the homestead lands.

Land on which winter rice is grown seldom yields a second crop, but wheat, barley, peas, and linseed are often grown on land from which an early rice crop has been taken. Only 3·6 per cent. of the cultivated area was twice cropped in 1903–4. On some of the uplands a crop is raised only once every two or three years; this is usually sesamum or some other variety of oilseed. The cultivation of indigo, which was grown on high lands or the banks of rivers, has almost entirely died out, as the price of the dye has fallen so low that it no longer pays to manufacture it here. The silk industry likewise has greatly decayed, owing largely to diseases amongst the worms.

Improvements in agricultural practice.

Little space exists for further extension of cultivation in the alluvial tract; but much good land remains to be brought under the plough in the west, and here the work of reclamation is now in progress. The out-turn in many parts might be much increased by substituting transplanted for broadcast rice. Fields are often manured with cow-dung and ashes; but the canal-irrigated and flooded tracts do not require manure, as the silt brought down by the water fertilizes the soil. Government loans are not popular, and during the ten years ending 1904 only about Rs. 1,000 a year was taken under the Land Improvement Loans Act and nothing under the Agriculturists' Loans Act.

Cattle.

The cattle are of the degenerate species met with in the plains of Bengal, and it is to be feared that they are still further deteriorating owing to the encroachment of tillage on the pasture lands. Attempts have been made at Midnapore town with some success to improve the breed of cattle by importing cows from Bihār and bulls from Hissār. Buffaloes

are common in the south and are mostly kept for milk. No less than forty-three fairs are held, but they are generally of a religious or semi-religious nature, and few cattle are sold at them.

Irrigation. The main source of irrigation is the Midnapore High-level Canal, which takes off from an anicut across the Kāsai river just below Midnapore town, and runs to Ulubāria on the Hooghly, 16 miles below Calcutta. It was completed in 1873 at a cost of 80 lakhs, and has a navigable length of 72 miles, including the portions of the Kāsai, Rūpnārāyan, and Dāmodar rivers into which it flows; regular steamer services, however, have ceased to ply since the opening of the Bengal-Nāgpur Railway to Calcutta. It has several distributaries, one of which is navigable, and in 1901 it supplied water to 80,000 acres of rice, or one-twentieth of the crop. Irrigation from tanks and embanked depressions is conducted in the upland tracts, but many of these tanks have been allowed by the landlords to fall into decay. In a year of good rainfall the average yield per acre of rice and straw from irrigated lands is 22 and 38 maunds, compared with 16 and 29 maunds respectively from unirrigated lands.

Forests. No 'reserved' or protected forests exist, but the western uplands are clothed with small *sāl* (*Shorea robusta*), *mahuā* (*Bassia latifolia*), tamarind, and *palās* (*Butea frondosa*). The jungle products are lac, *tasar* silk, wax, wood dye, bark fabrics, resin, firewood, and charcoal. The *mahuā* flower and various jungle roots are used as food.

Minerals. The District contains no mines, but laterite and limestone are quarried. The former is of the kind known as rock laterite, and is close grained, hard, and durable; it is generally met with at a depth varying from 2 to 4 feet below the surface. Magnesian potstones are also found. Alluvial gold occurs in small quantities, and also iron and soapstone.

Arts and manufactures. Excellent mats are manufactured at Raghunāthbāri, Kāsijorā, and Nārājol, whence they are exported to Calcutta. Pottery is made in the neighbourhood of Ghātāl for use in the metropolis, and brass and copper utensils are manufactured in Midnapore town for local sale. Bell-metal ware is extensively manufactured in Kharar, and exported to Calcutta and elsewhere. *Tasar* silk is manufactured in the north, but the processes are old-fashioned and the manufacturers are poor. Weavers are to be found in Chandrakonā and other places, but the industry is being killed by competition with machine-made imported fabrics. A Lyons firm owns a silk factory at Guruli in the

Ghātāl subdivision. Salt was formerly manufactured by Government on an extensive scale along the coast, but the manufacture has now ceased.

Large quantities of rice are sent to Calcutta. Among the other exports are sugar and molasses, jute, linseed, gram, pulses, charcoal, brass and bell-metal ware, timber, hides, mats, silk and cotton cloth, *tasar* silk, pottery, and vegetables. The chief imports are cotton goods, coal and coke, kerosene oil, gunny, salt, tobacco, potatoes, enamelled ware, nails, &c. The principal trading marts are Midnapore, Ghātāl, Tamlūk, Kukrāhāti, Pānskurā, Chandrakonā, Bālighai, Kasiāri, Garhbetā, and Nawāda. Much trade is also done at the fairs held at Tulsīchurā, Gopīballabhpur, Mahishādal, and Egrā. Many parts of the District enjoy special facilities for trade. The tidal rivers Hooghly, Rūpnārāyan, Haldī, and Rasūlpur afford an easy means of communication with Calcutta, and the canals carry much of the rice exported. Commerce.

The main line of the Bengal-Nāgpur Railway from Calcutta to Bombay traverses the District from east to west; and at Kharakpur the East Coast section branches to the south, and the line through Bānkurā and the Jherriā coal-fields to the north. These railways have all been opened since 1899. Railways.

The Orissa trunk road from Kolā, on the Rūpnārāyan, through Midnapore to Dāntan on the frontier of Orissa and the pilgrim road from Midnapore to Rānīganj are in charge of the Public Works department. They are metalled and, except where they cross the Silai and Kāsai, fully bridged, and have an aggregate length of 112 miles. The District board maintains 364 miles of metalled and 376 miles of unmetalled roads, and there are 754 miles of village tracks. The principal roads are bridged except where they cross big rivers. They lead from Midnapore to Chichrā on the Singhbhūm border, from Ghātāl to Sijuā on the Mānbhūm border, from Pānskurā to Tamlūk, from Contai Road railway station to Contai, from Pirākāta to Garhbetā, from Midnapore to the Burdwān border, from Garhbetā to Chandrakonā, and from Tamlūk to Contai. Notwithstanding the numerous excellent roads, much of the traffic in the interior is still carried by pack-bullocks. Roads.

The Coast Canal runs from Geonkhāli at the junction of the Rūpnārāyan and Hooghly rivers to the Haldī river, and thence to the Rasūlpur river and through the canalized Sarpai river to Contai. About 8 miles above Contai it is continued into Balasore District. It is a tidal canal with locks, and is Water communications.

used solely for drainage and navigation; but the traffic has much decreased since the opening of the railway along the East Coast, and the regular service of steamers has ceased. The first two reaches of this canal from Geonkhāli to the Rasūlpur river, called the Hijilī Tidal Canal, were opened in 1873, and the remainder, called the Orissa Coast Canal, in 1885. The Midnapore High-level Canal, from opposite Midnapore on the Kāsai river to Dainān on the Rūpnārāyan, was opened in 1873; it is used for navigation as well as for irrigation.

Daily steamer services run from Calcutta via Geonkhāli to Tamlūk and Kolā. Country boats ply in the Bay of Bengal, and on the Hooghly and other tidal rivers of the District; these are made near Contai, are partly decked, and will stand a moderate sea.

Famine.

The District is not specially liable to drought, but the years 1766, 1770, 1792, 1851, 1866, and 1897 were years of famine or scarcity. Of the first three little is known, but in 1851 it was estimated that nearly five-eighths of the rice harvest was destroyed. In 1866 the District was involved in the great Orissa famine. After a year of exceptional floods, a severe and protracted drought in 1865 resulted in a loss of half the winter rice crop, and the distress reached its height in August and September, 1866. Relief was afforded much too late and was meagre in the extreme; and although no accurate statistics of the mortality were obtained, it is estimated at 50,000, or no less than one-tenth of the total population of the famine tract. In 1897 a portion of the Binpur *thāna*, about 100 square miles in area, with a population of 25,000, was affected by scarcity.

District subdivisions and staff.

Midnapore District is one of the heaviest charges in Bengal. For the purposes of administration it is divided into four subdivisions, with head-quarters at MIDNAPORE, GHĀTĀL, TAMLŪK, and CONTAI. The staff at Midnapore town subordinate to the Magistrate-Collector, who is also *ex-officio* Assistant to the Superintendent of the Tributary Mahāls, Cuttack, and has the powers of a Revenue Superintendent of Canals in Howrah District, consists of a Joint-Magistrate, seven Deputy-Magistrate-Collectors, an Assistant Magistrate-Collector, and a special Deputy-Collector for excise. Each of the three outlying subdivisions is in charge of a Deputy-Magistrate-Collector; at Tamlūk he is assisted by a Sub-Deputy, and at Contai there is a second Deputy-Magistrate-Collector for the management of *khās mahāls*. The Executive Engineer of

the Kāsai division of the Public Works department is stationed at Midnapore.

Civil and criminal justice.

Civil justice is administered by a District Judge, with two Sub-Judges and four Munsifs at Midnapore, four Munsifs at Contai, four Munsifs at Tamlūk, and one Munsif each at Ghātāl, Dāntan, and Garhbetā. The criminal courts include those of the District and Sessions Judge, the District Magistrate, the Joint, Assistant, Deputy, and Sub-Deputy Magistrates. Midnapore is a heavy criminal District, and has long been notorious for the number of dacoities committed within its borders. These are largely the work of Tuntiās, a Muhammadan caste, whose traditional occupation is the cultivation of the mulberry-tree (*tunt*) for feeding silkworms. This occupation having become unprofitable, many of them have taken to criminal courses, and are professional thieves and dacoits.

Land revenue.

The current land revenue demand in 1903–4 was 24·49 lakhs, of which 18·90 lakhs was payable by 2,733 permanently settled estates, Rs. 89,000 by 200 temporarily settled estates, and the balance by 67 estates held by Government. The demand is larger than that of any other District in Bengal except Burdwān, and is equivalent to 36 per cent. of the reported gross rental of the District, the incidence on each cultivated acre being Rs. 1–2. The Permanent Settlement never extended to the Patāspur *pargana*, which adjoins Orissa and was in the possession of the Marāthās, along with that province, until 1803. Among the other estates which escaped the Permanent Settlement are Jalāmutā, Mājnamutā, Kalyānpur, and Balarāmpur. The proprietors of Jalāmutā and Mājnamutā refused to engage for them at the time of the Permanent Settlement on any but temporary conditions, on account of the liability of these estates to inundation. Kalyānpur in the west of the District consists of *taufir* or 'excess' lands, which by an oversight were left unsettled in 1793. The Balarāmpur *pargana*, in the neighbourhood of Kharakpur, was purchased by Government in 1838 at a sale for arrears of revenue. Patāspur was surveyed and settled for fifteen years from 1897. The other temporarily settled estates, with an area of nearly 500 square miles, are now under resettlement.

The average rent per acre for occupancy ryots' lands in the Patāspur estates is Rs. 3–4–1, but rates vary greatly in different parts. Land on which winter rice is grown usually fetches about 50 per cent. more than that used for early rice, and sugar-cane land is about twice as valuable as the best rice land. In addition to the rent, a cash premium of from Rs. 30

to Rs. 75 an acre is usually taken at the commencement of a new lease.

The following table shows the collections of land revenue and of total revenue (principal heads only), in thousands of rupees :—

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	22,45	24,34	22,40	24,13
Total revenue . .	31,01	34,95	37,36	39,75

Local and municipal government.

Outside the municipalities of MIDNAPORE, TAMLŪK, GHĀTĀL, CHANDRAKONĀ, RĀMJĪBANPUR, KHIRPAI, and KHARAR, local affairs are managed by a District board, with four subdivisional local boards and five Unions. The income of the District board in 1903–4 was Rs. 3,38,000, of which Rs. 1,75,000 was derived from rates; and the expenditure was Rs. 3,47,000, of which Rs. 2,16,000 was spent on public works and Rs. 99,000 on education.

Public works.

The system of railways and canals has already been described. Embankments have been constructed on an extensive scale, some with a view to protecting the coast-line from the invasion of the sea and preventing an inrush of salt tidal water from the creeks, and others to prevent the flooding of low lands by the overflow from the rivers. In all, no less than 785 miles of embankments are maintained by the Irrigation department, 543 miles at the public expense, and the balance at the cost of the parties benefited. A sea dike nearly 42 miles in length, extending from the western boundary of the District to the Rasūlpur river, protects the coast from inundation by storm-waves; it was constructed by Government in 1864–74 at a cost of 6 lakhs. The right bank of the Hooghly from the Rasūlpur to the Rūpnārāyan river is protected by an embankment, which is extended along the west bank of the Rūpnārāyan as far north as Ghātāl. Both banks of the tidal rivers Haldī and Rasūlpur and of several tidal *khāls* are also similarly embanked. The Kāsai river is hemmed in on both banks for a distance of 120 miles to prevent its waters from overflowing, and so is the Silai river for a distance of 25 miles; the Kāliāghai river is also embanked. Most of the embankments which are now maintained at public expense were in existence before the country came under British administration; they were originally in charge of the *zamīndārs*, but they were greatly neglected, and it was found necessary for Government to undertake their repair in order to ensure the punctual collection of the revenue. Various measures have been

adopted to improve the drainage in the waterlogged areas in the east and south of the District by cutting channels, deepening rivers and *khāls*, and providing sluices in embankments; but there is much scope for further work in this direction.

There is a lighthouse at Geonkhāli on the right bank of the Hooghly, opposite the northern point of Sāgar island.

Police and jails.

The District contains 26 *thānas*, 10 outposts, and 4 road-posts. In addition to the District Superintendent and his Assistant, the force includes 7 inspectors, 68 sub-inspectors, 68 head constables, 649 constables, and 109 town *chaukīdārs*; there is also a village police of 494 *daffadārs* and 5,863 *chaukīdārs*. The regular force is small for this large area, as there is only one policeman to 8.6 square miles and to 4,832 persons. The majority of the village *chaukīdārs* are now under Act VI (B.C.) of 1870, but many of them in the west of the District are still remunerated by service lands. The latter are the successors of the *paiks*, or foot-soldiers, who were retained by the *zamīndārs* of former times as a defence against the incursions of Marāthās and hill-robbers; their service lands are being gradually resumed, and they are being enlisted on regular pay under the Bengal Chaukīdāri Act. A Central jail at Midnapore town has accommodation for 1,340 prisoners, and sub-jails in the outlying subdivisions for 48.

Education.

At the Census of 1901 the proportion of literate persons was 10.6 per cent. (20.5 males and 0.7 females), a larger proportion than in any other part of Bengal except Calcutta and Howrah. The total number of pupils shown in the returns of the Educational department increased from 81,000 in 1883 to 107,000 in 1892–3, and 118,000 in 1900–1. There was a slight fall in 1903–4, when 102,000 boys and 12,000 girls were at school, being respectively 48.8 and 5.7 per cent. of the children of school-going age; both proportions compare favourably with the ratios for the whole of Bengal. The number of educational institutions, public and private, in 1903–4 was 4,263, including an Arts college, 118 secondary, 4,077 primary, and 66 special schools. The expenditure on education was 4.63 lakhs, of which Rs. 35,000 was met from Provincial funds, Rs. 94,000 from District funds, Rs. 6,000 from municipal funds, and 2.62 lakhs from fees. A training school at Binpur for aboriginal tribes and depressed castes, under the management of the American Baptist Mission, supplies teachers to 39 attached *pāthsālas* in the Jungle Mahāls. A small technical school at Midnapore town is aided from

District funds, and a *madrasa* at Patāspur is provided with a hostel from Provincial revenues. The District also contains 58 Sanskrit *tols*, of which 53 have adopted the standards prescribed by the Educational department.

Medical. In 1903 the District contained 14 dispensaries, of which 7 had accommodation for 123 in-patients. The cases of 20,000 out-patients and 1,500 in-patients were treated during the year, and 4,700 operations were performed. The expenditure was Rs. 29,000, of which Rs. 4,000 was met from Government contributions, Rs. 5,000 from Local and Rs. 12,000 from municipal funds, and Rs. 7,000 from subscriptions.

Vaccination. Vaccination is compulsory only in municipal areas. Elsewhere it is very backward, and in 1903–4 only 68,770 persons, or 25·5 per 1,000 of the population, were successfully vaccinated.

[Sir W. W. Hunter, *Statistical Account of Bengal*, vol. iii (1876); *Reports of the Embankment Committee* (Calcutta, 1839–40, reprinted in 1901); J. Price, *Early History of Midnapore* (Calcutta, 1876); *Selections from the Records of the Government of Bengal on the Settlement of Jalāmutā and Mājnamutā Estates in Midnapore* (Calcutta, 1882); *Embankment Committee's Report* (Calcutta, 1888).]

Midnapore Subdivision.—Head-quarters subdivision of Midnapore District, Bengal, lying between 21° 46′ and 22° 57′ N. and 86° 33′ and 87° 43′ E., with an area of 3,271 square miles. The subdivision consists in the north and west of thinly wooded and rocky uplands. The climate is good, but the laterite soil is dry and infertile. Towards the south and east the level dips, and a swampy hollow is formed between the elevated country to the west and the comparatively high ground along the coast. The population in 1901 was 1,277,749, compared with 1,223,248 in 1891, the density being 391 persons per square mile, which is much less than in any other subdivision. It contains one town, MIDNAPORE (population 33,140), the head-quarters; and 3,782 villages. KHARAKPUR, 8 miles from Midnapore town, is an important railway junction.

Ghātāl Subdivision.—Northern subdivision of Midnapore District, Bengal, lying between 22° 28′ and 22° 52′ N. and 87° 28′ and 87° 53′ E., with an area of 372 square miles. The subdivision slopes back from the bank of the Rūpnārāyan; the soil is a rich alluvium, but much of the area is liable to floods, and, though excellent crops are obtained, the inhabitants suffer greatly from malaria. The population in 1901 was

324,991, compared with 327,902 in 1891, the density being 874 persons per square mile. It contains five towns, GHĀTĀL (population, 14,525), the head-quarters, CHANDRAKONĀ (9,309), KHIRPAI (5,045), RĀMJĪBANPUR (10,264), and KAHRĀR (9,508); and 1,042 villages.

Tamlūk Subdivision.—Eastern subdivision of Midnapore District, Bengal, lying between 21° 54′ and 22° 31′ N. and 87° 38′ and 88° 11′ E., with an area of 653 square miles. The subdivision is a fertile tract, stretching along the estuary of the Hooghly, and producing rich crops of rice. The population in 1901 was 583,238, compared with 534,958 in 1891, the density being 893 persons per square mile. This is the most crowded part of the District. It contains one town, TAMLŪK (population, 8,085), the head-quarters; and 1,578 villages, of which the most important is GEONKHĀLI, a considerable centre of trade.

Contai Subdivision (*Kānthi*).—Southern subdivision of Midnapore District, Bengal, lying between 21° 36′ and 22° 11′ N. and 87° 25′ and 87° 59′ E., with an area of 849 square miles. The subdivision is a tract lying along the sea-coast, swampy and liable to inundation. The population in 1901 was 603,136, compared with 545,358 in 1891, the density being 710 persons per square mile. It contains 2,062 villages, including CONTAI, the head-quarters; but no town. This is the most progressive part of the District. The population increased by 10·6 per cent. during the decade ending 1901, immigrants crowding to the newly reclaimed lands, known as *jalpai* or 'fuel-lands,' so called because they formerly supplied the fuel for boiling brine when the landholders manufactured salt.

Chandrakonā.—Town in the Ghātāl subdivision of Midnapore District, Bengal, situated in 22° 44′ N. and 87° 32′ E. The population has steadily declined from 21,311 in 1872 to 9,309 in 1901. Early in the eighteenth century the town was taken from a Hindu family by Rājā Kīrti Chandra Rai of Burdwān, and it has since belonged to the Burdwān Rāj. It was formerly an important weaving centre, but the industry has died out. Chandrakonā was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 4,400 and Rs. 4,300 respectively. In 1903–4 the income was Rs. 5,300, chiefly derived from a tax on persons (or property tax); and the expenditure was Rs. 4,800.

Contai Village (*Kānthi*).—Head-quarters of the subdi-

vision of the same name in Midnapore District, Bengal, situated in 21° 47′ N. and 87° 46′ E. Population (1901), 2,558. The place has declined since the manufacture of salt was stopped about forty years ago. It contains the usual public offices; the sub-jail has accommodation for 15 prisoners.

Geonkhāli.—Village in the Tamlūk subdivision of Midnapore District, Bengal, situated in 22° 10′ N. and 87° 57′ E., on the right bank of the Hooghly river at the entrance of the Orissa Coast Canal. Population (1901), 524. It is a considerable trading centre. A steam ferry crosses from Diamond Harbour in connexion with the Eastern Bengal State Railway. There is a lighthouse here, known as the Cowcolly lighthouse.

Ghātāl Town.—Head-quarters of the subdivision of the same name in Midnapore District, Bengal, situated in 22° 40′ N. and 87° 43′ E., on the Silai river near its junction with the Rūpnārāyan. Population (1901), 14,525. A Dutch factory was formerly situated here. Ghātāl is an important trade centre, and is connected with Calcutta by a daily service of steamers. Cotton cloth and *tasar* silk are manufactured. It was constituted a municipality in 1869. The income and expenditure during the decade ending 1901-2 averaged Rs. 7,700 and Rs. 7,400 respectively. In 1903-4 the income was Rs. 9,400, mainly from a tax on persons (or property tax); and the expenditure was Rs. 9,300. The town contains the usual public offices; the sub-jail has accommodation for 18 prisoners.

Hijilī.—Name of an old village in Midnapore District, Bengal, situated at the mouth of the Rasūlpur river. The site has long since been washed away Hijilī was formerly the centre of an extensive salt manufacture, and the Muhammadans had a fort here. A mosque was built by Masnad Alī Shāh, who held the neighbouring district from 1505 to 1546, and whose tomb is still visited by pilgrims. In 1687, after the skirmish at Hooghly, Job Charnock occupied Hijilī on behalf of the East India Company and was besieged there for four months by a strong Mughal force. Eventually the Muhammadans raised the siege, whereupon Charnock evacuated the place and shortly afterwards laid the foundation of Calcutta.

The name of Hijilī was also given to a littoral tract of 1,014 square miles, extending along the right bank of the Hooghly river from the confluence of the Rūpnārāyan to that of the Subarnarekhā, and lying between 21° 47′ and 21° 53′ N. and 87° 53′ and 87° 59′ E.; it contained (among others) the two large *parganas* of Tamlūk and Mahishādal, and, under

Muhammadan rule, constituted a separate administration. In 1836 it was included in Midnapore District, with the exception of a small tract in the south which was added to the adjoining District of Balasore. Salt manufacture was discontinued about forty years ago owing to the competition of cheaper Liverpool salt.

[For an account of the siege of Hijilī, see C. R. Wilson, *Early Annals of the English in Bengal* (1895), pp. 103–11.]

James and Mary Sands.—A dangerous shoal in the Hooghly river, Bengal, situated in 22° 14′ N. and 88° 5′ E., between the confluence of the Dāmodar and Rūpnārāyan rivers with the Hooghly. The sands are 3 miles long and a third of a mile in width. They are so named from the wreck of the ship *Royal James and Mary*, which took place on these sands in 1694. The sands occupy the centre of the river, leaving channels on either side, known as the Eastern and Western Gut; they are probably due to the diminution of the velocity of the current of the main channel, caused by the water of the Rūpnārāyan entering the Hooghly nearly at right angles. Various schemes have been suggested for evading this dangerous shoal; and it has more than once been proposed to dig a short canal at the back of Hooghly Point so as to avoid the sands, or to construct ship canals from the docks to Diamond Harbour or to Canning on the Mātla river. The problem was examined in 1865 and again in 1895 by experts, both of whom suggested the construction of walls to train the channel into the Western Gut. Neither proposal has been adopted by the Port Commissioners, who are at present considering another scheme to improve the existing channels by dredging.

Kedgeree (*Khejri*).—Village in the Contai subdivision of Midnapore District, Bengal, situated in 21° 52′ N. and 87° 59′ E., on the right bank of the Hooghly river. Population (1901), 1,457. This was formerly an important anchorage, and close by is an old English burial-ground containing numerous graves of Europeans who died on shipboard off the coast.

Kharakpur.—Village in the head-quarters subdivision of Midnapore District, Bengal, situated in 22° 20′ N. and 87° 21′ E. Population (1901), 3,526. It is an important junction on the Bengal-Nāgpur Railway, from which the East Coast section runs south to Madras, while the main line connects Calcutta with Bombay, and a branch runs north to Bānkurā and Jherriā. Kharakpur is 8 miles from Midnapore town,

with which it is connected by road. In the village is the shrine of Pīr Lohāni, which is venerated by Hindus as well as by Muhammadans.

Kharār.—Town in the Ghātāl subdivision of Midnapore District, Bengal, situated in 22° 40′ N. and 87° 44′ E. Population (1901), 9,508. Brass and bell-metal wares are extensively manufactured. Kharār was constituted a municipality in 1888. The income and expenditure during the decade ending 1901–2 averaged Rs. 3,500 and Rs. 3,600 respectively. In 1903–4 the income was Rs. 4,800, derived mainly from a tax on persons (or property tax); and the expenditure was Rs. 4,100.

Khirpai.—Town in the Ghātāl subdivision of Midnapore District, Bengal, situated in 22° 43′ N. and 87° 37′ E. The population in 1901 was 5,045, compared with 8,046 in 1872. The decrease is due to the ravages of the 'Burdwān fever.' Khirpai was constituted a municipality in 1876. The income and expenditure during the decade ending 1901–2 averaged Rs. 2,300. In 1903–4 the income was Rs. 4,100, mainly derived from a tax on persons (or property tax); and the expenditure was Rs. 3,450.

Midnapore Town (*Medinipur*).—Head-quarters of Midnapore District, Bengal, situated in 22° 25′ N. and 87° 19′ E., on the north bank of the Kāsai river. Population (1901), 33,140, of whom Hindus numbered 26,094, Musalmāns 6,575, and Christians 398. The town was formally declared the head-quarters of the District in 1783, but a factory and fort had been built here more than twenty years previously. Midnapore has no great industry or trade, though brass-ware, rice, and timber are exported on a small scale. The town shows little tendency to grow. It has been recently connected with the Bengal-Nāgpur Railway system by a branch line to Kharakpur. Midnapore was constituted a municipality in 1865. The income during the decade ending 1901–2 averaged Rs. 60,000, and the expenditure Rs. 58,000. In 1903–4 the total income was Rs. 64,000, of which Rs. 18,000 was derived from a tax on houses and lands, Rs. 14,000 from a conservancy rate, Rs. 12,000 as fees from educational institutions, and Rs. 6,000 from a tax on vehicles. The incidence of taxation was Rs. 1–2–3 per head of the population. In the same year the expenditure of Rs. 63,600 included Rs. 2,000 spent on lighting, and the same amount on drainage, Rs. 16,000 on conservancy, Rs. 11,000 on medical relief, Rs. 4,000 on roads, and Rs. 20,000 on education. The town contains the usual

public buildings, and also a church and a Central jail. The jail has accommodation for 1,340 prisoners, who are employed on cloth-weaving, cane- and basket-work, mat-making, carpentry, and the manufacture of mustard oil. The American Baptist Mission maintains a training school and printing press. The educational institutions include an Arts college and a small technical school.

Rāmjībanpur.—Town in the Ghātāl subdivision of Midnapore District, Bengal, situated in 22° 50′ N. and 87° 37′ E. Population (1901), 10,264. Bell-metal ware is manufactured, but the weaving industry which formerly flourished has been killed by the importation of European piece-goods. Rāmjībanpur was constituted a municipality in 1876. The income and expenditure during the decade ending 1901–2 averaged Rs. 2,800 and Rs. 2,700 respectively. In 1903–4 the income was Rs. 3,550, two-thirds of which was derived from a tax on persons (or property tax); and the expenditure was Rs. 3,600.

Tamlūk Town.—Head-quarters of the subdivision of the same name in Midnapore District, Bengal, situated in 22° 18′ N. and 87° 56′ E. The population in 1901 was 8,085, compared with only 5,849 in 1872. Tamlūk or Tāmralipta, as it is called in Sanskrit, was the capital of an ancient kingdom known as Tāmralipta or Suhmā. The earliest kings belonged to the Peacock dynasty and were Rājputs by caste; but on the death of Nisanka Nārāyan of this line, the throne was usurped by Kālu Bhuiyā, the founder of the existing line of Kaibartta Rājās. Tamlūk figures as a place of great antiquity in the sacred writings of the Hindus. It first emerges in authentic history as a port, being the place whence the Chinese pilgrim Fa Hian took ship to Ceylon in the early part of the fifth century. Another celebrated pilgrim from China, Hiuen Tsiang, speaks of Tamlūk in the seventh century as still an important harbour, with ten Buddhist monasteries, 1,000 monks, and a pillar erected by king Asoka, 200 feet high. Indigo, silk, and copper (*tāmra*), the last of which gave its name to the place, were the traditional articles of export from ancient Tamlūk. Hiuen Tsiang found the city washed by the ocean; the earliest Hindu tradition places the sea 8 miles off, and it is now fully 60 miles distant. The process of land-making at the mouth of the Hooghly has gone on slowly but steadily, and has left Tamlūk an inland village on the banks of the Rūpnārāyan river. Under the rule of the ancient Peacock dynasty, the royal palace and grounds are said to have covered an area of 8 square miles, fortified with strong walls and deep ditches.

No trace of the ancient palace is now discernible, except some ruins to the west of the palace of the present Kaibartta Rājā, which is built on the side of the river, surrounded by ditches, and covers the more moderate area of about 30 acres. The old city lies under the river silt; even the great temple is now partly underground, and the remains of masonry wells and houses are met with at 18 to 21 feet below the surface. A considerable number of old silver and copper coins bearing Buddhist symbols have recently been discovered in the midst of débris from the crumbling banks of the Rūpnārāyan. The principal object of interest at Tamlūk is a temple sacred to the goddess Bargā Bhīma, or Kālī, on the bank of the Rūpnārāyan. The skill and ingenuity displayed in its construction still command admiration. The shrine is surrounded by a curious threefold wall which rises to a height of 60 feet, its width at the base being 9 feet. The whole is covered with a dome-shaped roof. Stones of enormous size were used in its construction. On the top of the temple, although dedicated to the wife of Siva, is the sacred disk (*chakra*) of Vishnu, surmounted by a peacock. The idol is formed from a single block of stone with the hands and feet attached to it. The goddess is represented standing on the body of Siva and has four hands. Outside the temple, but within its enclosure, is a *keli-kadamba* tree, supposed to have the virtue of redeeming wives from barrenness. Numbers of women flock hither to pray for offspring, suspending pieces of brick to the tree by ropes made of their own hair. There is also a Vaishnav temple at Tamlūk which, in shape and construction, resembles that of Bargā Bhīma.

Tamlūk is still a place of considerable importance as the centre of the boat traffic on the Rūpnārāyan. It was constituted a municipality in 1864. The income during the decade ending 1901–2 averaged Rs. 7,900, and the expenditure Rs. 7,200. In 1903–4 the income was Rs. 9,000, of which Rs. 3,000 was derived from a tax on persons (or property tax); and the expenditure was Rs. 8,000. The town contains the usual public offices; the sub-jail has accommodation for 15 prisoners.

[Sir W. W. Hunter, *Orissa*, vol. i (1872), and *Statistical Account of Bengal*, vol. iii (1876).]

Boundaries, configuration, and river system.

Hooghly District (*Hūgli*).—South-eastern District of the Burdwān Division, Bengal, lying between 22° 36′ and 23° 14′ N. and 87° 30′ and 88° 30′ E. Excluding the separate District of HOWRAH, which for revenue purposes still forms part of

Hooghly, it has an area of 1,191 square miles. It is bounded on the north by the District of Burdwān; on the east by the Hooghly river; on the south by the District of Howrah; and on the west by the Districts of Midnapore, Bānkurā, and Burdwān.

The high bank of the Hooghly river is densely populated and lined with gardens and orchards, interspersed with villages, temples, and factories; but between it and the bank of the Dāmodar extends a swampy waterlogged tract, which gradually rises towards the north-west. The principal rivers are the HOOGHLY, DĀMODAR, and RŪPNĀRĀYAN. The Hooghly nowhere crosses the boundary, and the Rūpnārāyan (here called the Dwārkeswar) flows only for a few miles across its western angle. The Dāmodar, which formerly entered the Hooghly about 39 miles above Calcutta, now flows almost due south across Hooghly and Howrah Districts, joining the Hooghly opposite Faltā. The result is a partial obstruction to the current of the latter river, and a consequent deposit of silt which forms the dangerous JAMES AND MARY SANDS. As in other deltaic Districts, the silt carried by the rivers is deposited in the river-beds and on their banks, which are thus gradually raised above the level of the surrounding country. Extensive swamps have in this way been formed between the Hooghly and the Dāmodar and between the latter river and the Rūpnārāyan; the most important are the Dānkuni, Sānti, Khanyān, and Dalki marshes.

The surface is covered by recent alluvial deposits, consisting of sandy clay and sand along the course of the rivers, and fine silt consolidating into clay in the flatter parts of the river plain. Geology.

The greater part of the District is flat, with the usual aquatic and marsh weeds of the Bengal rice plain, such as *Hydrilla*, *Vallisneria*, *Aponogeton*, *Utricularia*, and *Caesulia*. The Goghāt *thāna*, though very little higher, is still sufficiently dry to have many of the species characteristic of the western Districts, such as *Evolvulus alsinoides*, *Tragus racemosus*, *Aristida Adscenscionis*, *Wendlandia exserta*, and *Gmelina arborea*. In the neighbourhood of villages and towns, shrubberies of semi-spontaneous growth and more or less useful species are to be found. The *pīpal* (*Ficus religiosa*) and the banyan (*Ficus indica*), with other species of figs, make up, along with bamboos, plantains (*Musa sapientum*), jack (*Artocarpus integrifolia*), red cotton-tree (*Bombax malabaricum*), mango (*Mangifera*), *Moringa*, and *Odina Wodier*, the arborescent part of these thickets, in which are often present the Botany.

date-palm (*Phoenix sylvestris*) and toddy-palm (*Borassus flabellifer*). The District contains no forests.

Fauna. Tigers are extremely rare, but leopards are found in the north, and wild hog abound in the Hooghly and Pandua *thānas*, where they do much damage to the crops.

Climate, temperature, and rainfall. The climate is damp and moist, but the rainfall is seldom excessive, the normal fall being 57 inches, of which 9·7 inches are received in June, 12 in July, 12·5 in August, and 8·1 in September. The Dāmodar is peculiarly liable to sudden freshes, and floods were formerly common, especially in the south. In September, 1823, the Hooghly river rose to an unprecedented height; and in May, 1833, a very severe storm-wave and floods devastated Mandalghāt and the southern *parganas*. In August, 1844, the Dāmodar burst its banks and turned the whole country between Bāli Dīwānganj and Dhaniākhāli into one vast sea of water; and in September, 1845, Mandalghāt and the south of the District were similarly inundated. Thanks to numerous embankments, floods are now of comparatively rare occurrence; but in the south the country is still liable to inundation, especially on the right side of the Dāmodar, over which the floods are allowed to spill in order to save the embankments on the left of its course.

History. In the pre-Musalmān period Hooghly formed part of the Rārh and Suhmā divisions of Bengal, but the historical interest of the District dates from more recent times. The memories of several nations cluster round its principal towns, and many a village on the bank of the Hooghly is associated with some historical event. SĀTGAON, now a petty village, was the traditional mercantile capital of Bengal in the days of Hindu rule, and in the early period of the Muhammadan supremacy was the seat of the governor of Lower Bengal. In the sixteenth century the channel of the Saraswatī river, on which Sātgaon is situated, began to silt up, and the principal stream of the Ganges gradually deserted this bed for the Hooghly, at that time a comparatively small river; Sātgaon became inaccessible to large vessels, and in 1537 the Portuguese settled at HOOGHLY TOWN. In 1632 this was captured by the Muhammadans, after a three and a half months' siege, and the seat of the royal port of Bengal was removed thither from Sātgaon with all the records and offices. The English factory at Hooghly dates from 1651; and it was here that the English first came into collision with the Muhammadan government in Bengal, with the result that Hooghly was abandoned for Calcutta in 1690. The Dutch established themselves at CHINSURA in the

early part of the seventeenth century, and held it until it was ceded to Great Britain in 1825. CHANDERNAGORE became a French settlement in 1673, and, though more than once occupied by the English, is still a French possession. The Danes made a temporary settlement near the present site of Chandernagore towards the close of the seventeenth century. Their settlement at SERAMPORE, which dates from about 1676, was acquired by the English by purchase in 1845.

In 1759 Burdwān (which then included the present Hooghly District), Midnapore, and Chittagong were assigned to the East India Company by Mīr Kāsim for the support of troops to be kept up by the Company; and in 1765 the Mughal emperor invested the Company with the Dīwāni of Bengal. Hooghly was separated from Burdwān as a separate magisterial charge in 1795, and in 1819 it was constituted a separate revenue jurisdiction. Many changes have taken place in the area of Hooghly from time to time, owing to transfers to and from neighbouring Districts, the most important being the erection of HOWRAH into a separate magisterial charge in 1843.

The people.

The population of the District fell from 1,119,631 in 1872 to 974,992 in 1881, but rose again to 1,034,296 in 1891 and to 1,049,282 in 1901. The surface is but little above sea-level, and the drainage is deteriorating owing to the silting up of old streams and watercourses. The soil is waterlogged, and the District is consequently very unhealthy. About twenty years ago it suffered severely from the malignant 'Burdwān fever'; and, though this has disappeared, fevers of a virulent type are still prevalent. Cholera has been prevalent in many years, and dysentery also claims its victims. The birth-rate is, outside Calcutta, the lowest in Bengal, and the increase in the population during the last decade was due to immigration.

The principal statistics of the Census of 1901 are shown below:—

Subdivision.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Hooghly . .	442	2	942	308,715	698	− 0·3	30,680
Serampore . .	343	5	783	413,178	1,205	+ 3·3	46,629
Arāmbāgh . .	406	1	658	327,389	806	+ 0·8	34,321
District total	1,191	8	2,383	1,049,282	881	+ 1·4	111,630

The density of the population is greater than in any other

District of Western Bengal, apart from Howrah. Except on the crowded bank of the Hooghly river, it is highest in the south and decreases towards the north and west, where alone it falls below the rate of 800 persons per square mile. The only part of the District which showed any marked advance during the decade ending 1901 was the Serampore *thāna*, where the increase exceeded 17 per cent., the actual addition to its population being about the same as that for the District as a whole. Of the towns, HOOGHLY itself, including CHINSURA, the head-quarters of the District, is decadent, but SERAMPORE, the industrial centre, and BHADRESWAR are growing rapidly; the other chief towns are UTTARPĀRA, BAIDYABĀTI, and BĀNSBĀRIA, all lying along the Hooghly, and ARĀMBĀGH, the head-quarters of the subdivision of the same name. There is a large immigration from the neighbouring Districts, especially from Bānkurā; and the mills attract numerous labourers from Bihār, the United Provinces, Chotā Nāgpur, and Cuttack. Oriyās are employed as domestic servants and *pālki*-bearers, while labourers from Chotā Nāgpur and Cuttack work in the brickfields and elsewhere during the dry season. On the other hand, a large number of natives of the District find employment in Calcutta as petty shopkeepers and clerks. The vernacular spoken is the dialect known as Central Bengali. Hindus number 861,116, or 82 per cent. of the total, and Musalmāns 184,577, or 17·6 per cent., while of the remainder 2,766 are Animists and 759 Christians. The Muhammadans, who are chiefly Shaikhs, are found mostly in the head-quarters subdivision, where Hooghly and Pandua have long been centres of Muhammadan influence.

Castes and occupations.

The most numerous Hindu castes are those of the semi-aboriginal Bāgdis (189,000), Kaibarttas (157,000), the great race-caste of Midnapore, Brāhmans (73,000), and Sadgops (59,000), formerly the dominant caste of Gopbhūm. Of the total population, 54 per cent. are supported by agriculture—an unusually small proportion for Bengal—20 per cent. by industries, 2·5 per cent. by commerce, and 3·8 per cent. by the professions.

Christian missions.

A Portuguese mission at Bāndel maintains a school attended by about 75 boys. The United Free Church Rural Mission possesses 2 mission schools and a *zanāna* mission house, in addition to 4 out-stations. A school, formerly a college, founded in 1812 by the famous missionaries, Carey, Marshman, and Ward, and a training school for native pastors of the Baptist Church are conducted by the Baptist Mission at Serampore.

General agricultural conditions and principal crops.

The alluvial soil is extremely fertile and produces good rice crops. A strip ten miles broad along the west bank of the Dāmodar receives the spill waters of that river, and but little rice can be grown on it; but it produces magnificent cold-season crops of mustard and pulses, and also fine sugar-cane. The chief agricultural statistics for 1903–4 are shown below, in square miles:—

Subdivision.	Total.	Cultivated.	Cultivable waste.	Irrigated from canals.
Hooghly . . .	442	194	75	12
Serampore . . .	343	173	26	...
Arāmbāgh . . .	406	183	63	...
Total	1,191	550	164	12

Rice is the principal crop; large quantities of the finer kinds are grown for the Calcutta market, while coarse rice is imported for local consumption. The winter harvest is the most important crop. Sugar-cane, jute, and betel-leaf (*Piper Betle*) are extensively grown, and the District is noted for its market gardens: potatoes, yams, cauliflowers, cabbages, and brinjāls (*Solanum melongena*) are grown in great quantities, especially in the Serampore subdivision, for sale in Calcutta.

Improvements in agricultural practice.

During the last thirty years a series of drainage projects have been carried out to drain the numerous marshes; and the result has been to convert many square miles of marshy country into fertile arable land. Little advantage has been taken of the Land Improvement and Agriculturists' Loans Acts, the average sums advanced annually during the decade ending 1901–2 being only Rs. 2,500.

Cattle.

Pasturage is deficient, and the local cattle are poor and ill-fed. They graze on the stubble and, while the crops are on the ground, are stall-fed with rice straw. Sheep are fattened for the Calcutta market, especially in the Pandua *thāna*.

Irrigation.

The ordinary crops are irrigated only in seasons of drought; but potatoes, sugar-cane, and betel-leaf require plentiful irrigation, the water being lifted from the nearest river, *khāl*, or tank. Some irrigation takes place from the EDEN and MIDNAPORE CANALS.

Minerals.

A valuable description of fine sand used for mortar is dug up from the old bed of the Saraswatī river at Magrā, and limestone is quarried in tracts bordering on Midnapore District.

Arts and manufactures.

In the early days of the East India Company, silk and cotton fabrics to the annual value of about 10 lakhs were woven; and though these industries have declined, they are

still important, and superior cotton fabrics fetch high prices. Silk and *tasar* fabrics are manufactured in the Ārāmbāgh subdivision, and silk handkerchiefs in Serampore town. The chief centres of the cotton-weaving industry are Serampore, Haripāl, and Khanyān, the weavers in Serampore and its neighbourhood using an improved hand-loom with a fly-shuttle. Silk and cotton cloths are dyed by the weaving classes, and at Serampore silks are dyed and colour-printed. Some *chikan* work (embroidery) is done in the Dhaniākhāli *thāna*. Gunny cloth is manufactured at Bālughāt, and jute and hemp rope at Chātra, Sankarpur, Nabagrām, and Khalsini. Castor and mustard oils are largely manufactured. Brass and bell-metal utensils are made in several places, especially in the neighbourhood of Bānsbāria and Kāmārpāra. A colony of carpenters near Chandernagore work for the Calcutta shops, and in the Goghāt *thāna* ebony-wood work is manufactured, the articles finding a ready sale in Calcutta and the neighbouring Districts. Baskets are made at Māyāpur, Bandipur, and Magrā, and good mats are woven at Serampore, Bandipur, Akri, and Borai. Common pottery-ware is made at Bhadreswar and Sukindā, and large quantities of bricks, tiles, and *surki* are manufactured, chiefly in the Serampore subdivision. A cotton-mill at Serampore employs 800 hands, while as many as 23,000 earn a livelihood in the jute-mills at Serampore, Rishrā, Chāmpdāni, Telinipāra, and Chandernagore. The Victoria Chemical Works at Konnagar produced in 1903–4 an out-turn of 900 tons of chemicals.

Commerce. The chief exports are fine rice, pulses, silk, indigo, jute and hemp rope, cotton cloth, gunny-bags, bricks, tiles, and vegetables; and the chief imports are common rice, English piece-goods, twist and yarn, salt, lime from Burdwān and Sylhet, tobacco, coal, kerosene oil, *ghī*, spices, and timber. The principal marts are Seorāphulī, Magrā, Bhadreswar, and Bāli Dīwānganj, at all of which agricultural produce is collected for dispatch, chiefly to Calcutta. The hand-loom cotton fabrics are sold at Sālkhia Hāt in Howrah District. Most of the important trade centres have the advantage of excellent means of transport by rail, river, canal, and road. Pack-bullocks are largely used in Ārāmbāgh.

Railways. The east of the District is well provided with railways. The East Indian Railway (broad gauge) runs through it for a distance of about 41 miles, with eighteen stations in the District. The Tārakeswar branch of this railway, 22 miles n length, accommodates the pilgrim traffic to the famous

temple of Tārakeswar. The Naihāti branch, leading to the Jubilee Bridge over the Hooghly, establishes communication with the Eastern Bengal State Railway. The Tārakeswar-Magrā Railway (2 feet 6 inches gauge) leaves the East Indian Railway at Magrā and joins the Tārakeswar branch at Tārakeswar; recently this line has been extended to Tribenī. The Howrah-Sheakhāla Steam Tramway (2 feet gauge) lies partly, and an extension of the Howrah-Amtā Light Railway (2 feet gauge) from Jagatballabhpur to Champādānga almost wholly, within the District. Other lines have been projected, including the Hooghly-Kātwa extension and the Burdwān-Howrah chord-line of the East Indian Railway, and the Bishnupur-Howrah chord-line of the Bengal-Nāgpur Railway.

Roads.

The grand trunk road from Calcutta crosses the Hooghly at Paltā and traverses the District for 37 miles, being joined at Ghireti by a branch from Sālkhia through Serampore; it is maintained by the District board, the expenditure being met from Provincial funds. There are in addition 506 miles of District roads, of which 78 are metalled, and 844 miles of village tracks. The old Benares road was formerly a military road, but it is now in a neglected condition, being annually flooded by the water of the Dāmodar. The road from Tribenī to Guptipāra formed the old through route from Calcutta to Nabadwīp, Murshidābād, Rangpur, and Darjeeling. Other roads connect Chinsura with Dhanikhāli and Khānpur, Hooghly town with Majnān, Magrā with Khānpur, Pandua with Kālna, Bainchi with Dasgharā, Chandernagore with Bholā, Baidyabāti with Tārakeswar, Nabagrām with Chaspur, Arāmbāgh with Tetulmāri, Uchalan with Midnapore, and Māyāpur with Jagatpur, via Khānākul. The roads in the Arāmbāgh subdivision are mostly fair-weather tracks, barely passable by bullock-carts during the rains.

Water communications.

A daily service of steamers plies on the Hooghly between Calcutta and Kālna in Burdwān, calling at several places in Hooghly District for passengers and cargo.

Famine.

The District is practically immune from famine; but in 1866 some relief measures were necessary, and in 1874 there was slight distress in the northern *thānas*.

District subdivisions and staff.

For administrative purposes the District is divided into three subdivisions, with head-quarters at CHINSURA, SERAMPORE, and ARĀMBĀGH. The Magistrate-Collector is also Collector of HOWRAH, which is subordinate to Hooghly for revenue purposes. He is assisted at head-quarters by a staff of one Joint-Magistrate and six Deputy-Magistrate-Collectors.

The Serampore subdivision is in charge of a Joint-Magistrate, assisted by a Deputy-Magistrate-Collector and a Sub-Deputy-Collector. The subdivisional officer of Arāmbāgh is a Deputy-Magistrate-Collector, and he has a Sub-Deputy-Collector subordinate to him. Chinsura is the head-quarters of the Commissioner of the Burdwān Division and of the District Civil Surgeon; a second Civil Surgeon is stationed at Serampore.

Civil and criminal justice.

The District and Sessions Judge is also Judge of Howrah; subordinate to him for civil work are two Sub-Judges, a Small Cause Court Judge, and eight Munsifs, of whom two sit at Hooghly, three at Serampore, and three at Arāmbāgh. The Additional District and Sessions Judge of the Twenty-four Parganas is also Additional District and Sessions Judge of Hooghly. The criminal courts include those of the Sessions and Additional Sessions Judges, the District Magistrate, and the above-mentioned magistrates. With the exception of dacoity, the District is comparatively free from serious crime. The French settlement of Chandernagore used to be a centre for the smuggling of opium and spirits, but this illicit trade has now been checked.

Land revenue.

The current land revenue demand, including that for Howrah, amounted in 1903–4 to 13·64 lakhs, payable by 4,229 estates. The greater portion of the District is permanently settled, and the total demand from other classes of estates is only Rs. 60,000. Owing to the close assessment at the time of the Permanent Settlement, the incidence of land revenue (which amounts to Rs. 3–0–8 per cultivated acre) is higher than in any other District in Bengal, except Burdwān, of which Hooghly at that time formed part. As in that District, *patnī* and *darpatnī* tenures are common. Rents are high and have risen of late years. First-class rice land, which was formerly rented for Rs. 11–4 an acre, now pays from Rs. 15–12 to Rs. 27, and the rent of inferior rice land has risen from between Rs. 5–10 and Rs. 6–12 to between Rs. 7–14 and Rs. 10–2 an acre. Mulberry and tobacco lands are rented at from Rs. 18 to Rs. 45 an acre, and sugar-cane land at from Rs. 18 to Rs. 36.

The table on the next page shows the collections of land revenue and of total revenue (principal heads only), in thousands of rupees.

Local and municipal government.

Outside the eight municipalities of HOOGHLY (with CHINSURA), SERAMPORE, UTTARPĀRA, BAIDYABĀTI, BHADRESWAR, KOTRANG, BĀNSBĀRIA, and ARĀMBĀGH, local affairs are man-

aged by the District board, with subordinate local boards in each subdivision, besides five Union committees. In 1903-4 the total income of the District board was Rs. 1,48,000, of which Rs. 79,000 was derived from Provincial rates; the expenditure amounted to Rs. 1,68,000, of which Rs. 98,000 was spent on public works. The Howrah-Sheakhāla Light Railway was constructed in 1897 under the auspices of the District board, which guarantees 4 per cent. on the capital and receives half the net profits above that sum. Under this agreement the District board paid Rs. 6,243 and Rs. 3,471 in 1896-7 and 1898-9 respectively; since that time the financial position has improved, and though the board has sometimes had to pay smaller sums, it has also occasionally received a share of profits.

	1880-1.	1890-1.	1900-1.	1903-4.
Land revenue . .	13,37*	14,29*	13,36*	13,83
Total revenue . .	21,90	25,99	23.78	24,23

* Includes Howrah.

Embankments have been constructed along portions of the Dwārkeswar, Sankra, Rūpnārāyan, Dāmodar, Kāna Dāmodar, Kāna Nadī, and Saraswatī rivers. The Dānkuni marsh was drained in 1873, and 20 square miles of almost valueless and very malarious country were thereby converted into fertile arable land. A small portion of the District is irrigated from the EDEN CANAL. The Hooghly is spanned at Naihāti by a large cantilever bridge, which was opened in 1887 (*see* HOOGHLY RIVER). Public works.

The District contains 13 police stations and 23 outposts. The force subordinate to the District Superintendent in 1903 consisted of 3 inspectors, 42 sub-inspectors, 67 head constables, and 699 constables. Chinsura is the head-quarters of a company of military police 100 strong, which is utilized, when necessary, to maintain order among the men working in the numerous mills on both banks of the Hooghly. There is one policeman to every 2·1 miles of area and to every 1,883 persons. The rural police consists of 276 *daffadārs* and 2,804 *chaukīdārs*. The District jail at Hooghly town can hold 437 prisoners, and sub-jails at Serampore and Arāmbāgh have a total accommodation for 43. Police and jails.

In 1901 the proportion of literate persons was 10·6 per cent. (19·7 males and 1·4 females). The proportion of literate females is higher than in any other part of Bengal except Education.

Calcutta. The total number of pupils under instruction was 53,956 in 1892–3 and 43,911 in 1900–1. In 1903–4, 43,667 boys and 3,549 girls were at school, being respectively 55·2 and 4·5 per cent. of the children of school-going age. The number of educational institutions, public and private, in the latter year was 1,469, including 2 Arts colleges, 97 secondary, 1,224 primary, and 145 special schools. The expenditure on education was 3·45 lakhs, of which Rs. 60,000 was met from Provincial funds, Rs. 42,000 from District funds, Rs. 5,000 from municipal funds, and 1·81 lakhs from fees. The principal educational institutions are in Hooghly town; but one of the Arts colleges is at UTTARPĀRA, where there is also a large public library given by Babu Jay Krishna Mukharjī, the founder of the college. Public libraries are likewise maintained at Hooghly town and Serampore.

Medical. In 1903 the District contained 13 dispensaries, of which 6 had a total accommodation for 131 in-patients; the cases of 71,000 out-patients and 2,111 in-patients were treated, and 5,308 operations were performed. The expenditure was Rs. 32,000, of which Rs. 4,000 was met from Government contributions, Rs. 16,000 from Local and Rs. 7,000 from municipal funds, and Rs. 4,000 from subscriptions. Besides these, there were in 1903 one police hospital and one railway hospital at Hooghly town, and 16 private hospitals in the District.

Vaccination. Vaccination, which is compulsory within the municipal areas, is not making great progress in the District. In 1903–4 the number of persons successfully vaccinated was 25,000, representing 27 per 1,000 of the population.

[Sir W. W. Hunter, *Statistical Account of Bengal*, vol. iii (1876); G. Toynbee, *A Sketch of the Administration of the Hooghly District from* 1795 *to* 1845 (Calcutta, 1888); *Hooghly Medical Gazetteer*; and Lt.-Col. D. G. Crawford, I.M.S., *A Brief History of the Hooghly District* (Calcutta, 1903).]

Hooghly Subdivision.—Head-quarters subdivision of Hooghly District, Bengal, lying between 22° 52′ and 23° 14′ N. and 87° 58′ and 88° 30′ E., with an area of 442 square miles. The subdivision is a flat alluvial tract, intersected by numerous streams and containing a number of swampy depressions. The population in 1901 was 308,715, compared with 309,616 in 1891, the density being 698 persons per square mile. It contains two towns, HOOGHLY with CHINSURA (population, 29,383), the head-quarters, and BĀNSBĀRIA (6,473); and 942 villages. In addition to Hooghly

and Chinsura, SĀTGAON, BĀNDEL, and PANDUA possess historical and TRIBENĪ some religious interest. MAGRĀ is an important mart.

Serampore Subdivision.—South-eastern subdivision of Hooghly District, Bengal, lying between 22° 40′ and 22° 55′ N. and 87° 59′ and 88° 22′ E., with an area of 343 square miles. The subdivision consists of a level strip of land bounded on the east by the Hooghly river, and exhibits all the features of a thickly peopled deltaic tract. The population in 1901 was 413,178, compared with 399,987 in 1891. It contains five towns, SERAMPORE (population, 44,451), the head-quarters, UTTARPĀRA (7,036), BAIDYABĀTI (17,174), BHADRESWAR (15,150), and KOTRANG (5,944); and 783 villages. The towns, which are all situated along the bank of the Hooghly, contain a large industrial population, and the subdivision is more thickly populated than the rest of the District, there being no fewer than 1,205 persons per square mile. A shrine at TĀRAKESWAR is largely resorted to by pilgrims.

Arāmbāgh Subdivision.—Western subdivision of Hooghly District, Bengal, lying between 22° 36′ and 23° 2′ N. and 87° 30′ and 87° 59′ E., with an area of 406 square miles. The subdivision is a low-lying deltaic tract, which is generally looked on as the unhealthiest part of the District, and its crops are often damaged by floods caused by the Dāmodar spilling over its right bank. The Goghāt *thāna* on the western side of the Dwārkeswar has a laterite soil and is not subject to floods. The population in 1901 was 327,389, compared with 324,693 in 1891, the density being 806 persons per square mile. It contains one town, ARĀMBĀGH (population, 8,281), the head-quarters; and 658 villages. The chief marts are at SYĀMBAZAR, KHĀNĀKUL, and BĀLI. Bhitargarh, 8 miles west of Arāmbāgh, contains the ruins of Garh Māndāran, once the frontier town on the borders of Orissa and the scene of much fighting in the fifteenth and sixteenth centuries.

Arāmbāgh Town.—Head-quarters of the subdivision of the same name in Hooghly District, Bengal, situated in 22° 53′ N. and 87° 47′ E., on the Dwārkeswar river. Population (1901), 8,281. The name was changed from Jahānābād in 1900, to distinguish it from the town of that name in Gayā District. Arāmbāgh was constituted a municipality in 1886. The income and expenditure during the decade ending 1901–2 averaged Rs. 5,100 and Rs. 4,900 respectively. In 1903–4 the income was Rs. 7,000, half of which was derived from

a tax on persons; and the expenditure was Rs. 6,400. The town contains the usual public offices; the sub-jail has accommodation for 15 prisoners.

Baidyabāti.—Town in the Serampore subdivision of Hooghly District, Bengal, situated in 22° 47′ N. and 88° 20′ E., on the bank of the Hooghly river. Population (1901), 17,174. The town is an important trade centre, and Seorāphulī, a southern suburb, is a thriving market for jute and potatoes. A jute-mill at Chāmpdāni east of the town gives employment to 3,000 hands. Rope made of jute and hemp is manufactured within the town. Baidyabāti was constituted a municipality in 1869. The income during the decade ending 1901–2 averaged Rs. 20,000, and the expenditure Rs. 18,000. In 1903–4 the income was Rs. 25,200, of which Rs. 8,000 was derived from a tax on persons, and Rs. 5,000 from a conservancy rate; and the expenditure was Rs. 22,000.

Balāgarh.—Village in the head-quarters subdivision of Hooghly District, Bengal, situated in 23° 8′ N. and 88° 28′ E., on the bank of the Hooghly river. Population (1901), 763. Balāgarh is the seat of a large boat-building and timber trade. On the alluvial islands in the vicinity vegetables are largely grown for the Calcutta market.

Bāli.—Village in the Arāmbāgh subdivision of Hooghly District, Bengal, situated in 22° 49′ N. and 87° 46′ E., on the west bank of the Dwārkeswar river. Population (1901), 732. Bāli is the seat of a large trade in brass-ware and rice. Silk and cotton cloth of a superior quality are still manufactured here and in the neighbourhood, though the industry is on the decline. Dīwānganj, a contiguous village, is the seat of a large market.

Bāndel (from *bandar*, 'a wharf').—Suburb of Hooghly town in Hooghly District, Bengal, situated in 22° 55′ N. and 88° 24′ E., on the bank of the Hooghly river, about a mile north of the town and within its municipal jurisdiction. It contains a Roman Catholic convent, said to be the oldest Christian church in Bengal. Over the gateway is a stone bearing the date 1599, which, however, records the foundation not of the present but of the original building, sacked and destroyed by the Muhammadans about the year 1629. It was rebuilt in 1660 by Gomez de Soto, and called the convent of Nossa Senhora D'Rojario; the large hall on the east of the church was added about 1820. The title on which the property is held is a *farmān* assigning 777 *bīghas* of land to the community, granted by the emperor Shāh Jahān in 1633

and subsequently confirmed in 1646. The Circuit House is a fine building, which was formerly the residence of the Dacoity Commissioner. Bāndel is famous for its cream cheeses.

Bānsbāria (*Bānsbāti*, 'the place of bamboos').—Town in the head-quarters subdivision of Hooghly District, Bengal, situated in 22° 58′ N. and 88° 24′ E., on the bank of the Hooghly. Population (1901), 6,473. The town contains a group of three temples, of which the best known is that of Hanseswarī, with thirteen pinnacles and an image of Siva in each. It was built in 1819 by Rānī Sankarī Dāsī, the wife of a *zamīndār* of the place, at a cost of 5 lakhs of rupees, and was formerly protected against the Marāthās by a fort armed with four cannon. The group of temples occupies 15 acres of ground. Several *tols* or Sanskrit schools were formerly maintained at Bānsbāria, but Sanskrit studies are now on the decline. A considerable trade in brass and bell-metal ware and bricks is carried on. Bānsbāria was constituted a municipality in 1869. The income during the decade ending 1901–2 averaged Rs. 6,600, and the expenditure Rs. 5,600. In 1903–4 the income was Rs. 9,000, of which Rs. 4,000 was derived from a tax on persons; and the expenditure was Rs. 6,600. The old village of TRIBENĪ is included in the municipal area.

Bhadreswar.—Town in the Serampore subdivision of Hooghly District, Bengal, situated in 22° 50′ N. and 88° 21′ E., near the bank of the Hooghly. Population (1901), 15,150. It is a thriving town and has the largest rice-market in the District. The Victoria Jute Mills give employment to 5,700 hands. Bhadreswar was constitued a municipality in 1869. The income during the decade ending 1901–2 averaged Rs. 12,000, and the expenditure Rs. 11,000. In 1903–4 the income was Rs. 16,000, of which Rs. 7,000 was derived from a tax on houses and lands; and the expenditure was Rs. 14,000.

Chinsura.—Town in Hooghly District, Bengal, situated in 22° 53′ N. and 88° 24′ E., on the bank of the Hooghly river, a short distance to the south of Hooghly town. Chinsura is now included in the Hooghly municipality (*see* HOOGHLY TOWN), and the two towns contained in 1901 a joint population of 29,383. The Dutch established themselves at Chinsura in the early part of the seventeenth century and held the place till 1825, when it was ceded by the Netherlands to Great Britain in part exchange for the English possessions in Sumatra. It was formerly used as a military invalid dépôt, and for regiments

arriving from or proceeding to England; but in 1871 the military station was abandoned and the barracks were leased to the residents and utilized for schools, a post office, and other public purposes. Chinsura contains the courts, the Imāmbāra Hospital with 40 beds, and a female hospital with 13 beds. The church and a large house on the river bank at a short distance to the north of it were built by the Dutch, the latter being the official residence of the Governor. The Armenian Church erected in 1695 is a building of considerable antiquarian interest. Chinsura was the head-quarters of the Burdwān Division from 1879 to 1884; they were then removed to Burdwān, but were again transferred to Chinsura in 1896. The Hooghly College is finely situated on the bank of the river near the church; it was founded and endowed in 1836 from a portion of the trust fund of the Saiyidpur estate in Jessore District. There are 150 students in the college, which teaches up to the B.A., and in some subjects to the M.A., standard of the Calcutta University; and 200 boys in a school attached to the college. This school, the Chinsura Free Church Mission school, and the Chinsura Training Academy are all higher English schools. A public library was established in 1854 and is partly endowed.

Hooghly Town.—Head-quarters of Hooghly District, Bengal, situated in 22° 55′ N. and 88° 24′ E., on the right bank of the Hooghly river and on the East Indian Railway. Hooghly was founded by the Portuguese in 1537 on the decay of the royal port of SĀTGAON. At Gholghāt, close to the present Hooghly jail, the ruins are still visible of a fortress which formed the nucleus of the town and port of Hooghly. Exasperated by the havoc wrought by the Portuguese pirates at Chittagong, and in order to revenge himself for the Hooghly governor's refusal to assist him when he was in revolt against his father eight years previously, the emperor Shāh Jahān sent a Mughal force against the town in 1632, which carried it by storm after a three and a half months' siege. Over 1,000 Portuguese were slaughtered, and more than 4,000 men, women, and children were made prisoners, and the place was then established as the royal port in lieu of Sātgaon. The Portuguese were allowed to return to Hooghly in 1633, the emperor making them a grant of 777 *bīghas* of land at BĀNDEL. The English factory at Hooghly dates from 1651, having been established under a *farmān* granted by the emperor to Dr. Boughton, a surgeon in the East India Company's service, who had cured his favourite daughter of a dangerous illness. In 1686 a

dispute took place between the English factors at Hooghly and the Nawāb of Bengal, and a military force was dispatched from England to strengthen and protect the Company's factories there. An accident precipitated the rupture. In October, 1686, three English soldiers were set upon and beaten in the Hooghly bazar and taken to the governor's house. After some street fighting the battery and the governor's house were captured by the English, who subsequently withdrew under an armistice to Calcutta, or Sūtānuti as it was then called. This was the first collision between the English and the Muhammadan government in Bengal.

Hooghly was the head-quarters of the Burdwān Division from 1871 to 1875, and from 1879 to 1884 they were at its suburb, Chinsura; they were then moved to Burdwān, but were transferred back to Chinsura in 1896. The place is now decadent and its population with that of Chinsura, with which it is incorporated as a municipality, has declined from 34,761 in 1872 to 29,383 in 1901. Hindus constitute 82·8 per cent. and Musalmāns 16·6 per cent. of the total. The municipality was created in 1865. The income during the decade ending 1901–2 averaged Rs. 50,000, and the expenditure Rs. 47,000. In 1903–4 the total income was Rs. 60,000, including Rs. 28,000 derived from a tax on houses and lands, Rs. 18,000 from a conservancy rate, Rs. 5,000 from a tax on vehicles, and Rs. 3,000 from tolls. The incidence of taxation was Rs. 1–13–10 per head of the population. In the same year the expenditure was Rs. 53,000, of which Rs. 4,000 was spent on lighting, Rs. 3,000 on drainage, Rs. 28,000 on conservancy, Rs. 5,000 on roads, and Rs. 900 on education. The municipality maintains 51 miles of metalled and 76 miles of unmetalled roads. The grand trunk road, which passes through the town, and a few short lengths of road in the old cantonment are kept up by Government. The Imāmbāra is a Shiah mosque, which was completed in 1861 at a cost of 2·2 lakhs from funds bequeathed by a wealthy Shiah nobleman, Muhammad Mohsin. The other principal buildings are the municipal office and jail; the latter has accommodation for 437 prisoners, who are chiefly employed on bag-sewing for the neighbouring jute-mills and oil-pressing. The chief educational institutions are the Hooghly College at CHINSURA, possessing a branch in Hooghly itself, a training college for schoolmasters, and the Madrasa.

Khānākul.—Village in the Arāmbāgh subdivision of Hooghly District, Bengal, situated in 22° 43′ N. and 87°

52′ E., on the west bank of the Kāna Nadī. Population (1901), 886. There is some trade in brass-ware, and cotton fabrics of a superior quality are manufactured in the neighbourhood. Vegetables are extensively grown for the Calcutta market. A large temple to Siva stands on the river bank.

Kotrang.—Town in the Serampore subdivision of Hooghly District, Bengal, situated in 22° 41′ N. and 88° 21′ E., on the bank of the Hooghly river. Population (1901), 5,944. Bricks, *surki*, and tiles are made in large quantities, and rope and string are also manufactured. Kotrang was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 4,100 and Rs. 3,800 respectively. In 1903–4 the income was Rs. 5,500, half of which was derived from a tax on persons; and the expenditure was Rs. 4,650.

Magrā.—Village in the head-quarters subdivision of Hooghly District, Bengal, situated in 22° 59′ N. and 88° 22′ E., on the Magrā Khāl. Population (1901), 96. Magrā is a station on the East Indian Railway and the terminus of the Magrā-Tārakeswar Light Railway; it is an important mart with an extensive trade in grain and tobacco. Large quantities of sand from the bed of the old Saraswatī river are exported to Calcutta and elsewhere for building purposes.

Pandua Village.—Village in the head-quarters subdivision of Hooghly District, Bengal, situated in 23° 5′ N. and 88° 17′ E., on the East Indian Railway and on the grand trunk road. Population (1901), 2,381. It was formerly noted for its manufacture of native paper, but the industry has disappeared. In ancient times Pandua, which is now only a small village, was the seat of a Hindu Rājā and was fortified by a wall and trench 5 miles in circumference, traces of which can still be seen. There is also a tower (120 feet high), built to commemorate a victory gained by the Muhammadans over the Hindus in 1340.

Sātgaon.—Ruined town in Hooghly District, Bengal, situated in 22° 58′ N. and 88° 23′ E., to the north-west of Hooghly town. Population (1901), 153. Sātgaon was the mercantile capital of Bengal from the days of Hindu rule until the foundation of Hooghly by the Portuguese. Its decay dates from the silting-up of the channel of the Saraswatī; and nothing now remains to indicate its former grandeur except a ruined mosque, the modern village consisting of a few miserable huts. Sātgaon is said to have been one of the resting-places of Bhāgīrath. De Barros writes that it was 'less frequented

than Chittagong, on account of the port not being so convenient for the entrance and the departure of ships.' Purchas states it to be 'a fair citie for a citie of the Moores, and very plentiful, but sometimes subject to Patnaw.' In 1632, when Hooghly was declared a royal port, all the public offices were withdrawn from Sātgaon, which rapidly fell into ruins.

Serampore Town (*Srīrāmpur*).—Head-quarters of the subdivision of the same name in Hooghly District, Bengal, situated in 22° 45′ N. and 88° 21′ E., on the bank of the Hooghly river, opposite Barrackpore. The population increased from 24,440 in 1872 to 25,559 in 1881, to 35,952 in 1891, and to 44,451 in 1901, the progress being due to the important mills which it contains. Of the total, 80 per cent. are Hindus and 19 per cent. Musalmāns, while of the remainder 405 are Christians.

Serampore was originally a settlement of the Danes, who remained here until 1845, when by a treaty with the King of Denmark all the Danish possessions in India, consisting of the towns of Tranquebar and Serampore (or Frederiksnagar, as it was called) and a small piece of ground at Balasore formerly occupied as a Danish factory, were sold to the East India Company for 12½ lakhs of rupees. Serampore was the scene of the labours of the Baptist missionaries, Carey, Marshman, and Ward; and the mission, in connexion with which its founders established a church, school, and library, still flourishes. Two great *melas*, the Snānjātra and the Rathjātra, are annually held in the Māhesh and Ballabhpur suburbs of the town. At the first the image of Jagannāth is brought from his temple at Māhesh and bathed; at the second and more important the image is dragged to the temple of a brother god, Rādhāballabh, and brought back after an eight days' visit. During these days an important fair is held at Māhesh, which is very largely attended, as many as 50,000 persons being present on the first and last days of the festival. The town contains several important mills, and silk- and cotton-weaving by hand is also largely carried on; other industries are silk-dyeing, brick-making, pottery, and mat-making.

Serampore was constituted a municipality in 1865. The income during the decade ending 1901–2 averaged Rs. 55,000, and the expenditure Rs. 53,000. In 1903–4 the income was Rs. 60,000, including Rs. 29,000 derived from a tax on houses and lands, Rs. 16,000 from a conservancy rate, Rs. 5,000 from tolls, Rs. 1,600 from a tax on vehicles, Rs. 1,500 from a tax on professions, &c., and Rs. 2,000 from the municipal market,

which is held in a corrugated iron building. The incidence of taxation was Rs. 1-3-5 per head of the population. In the same year the expenditure was Rs. 54,000, the chief items being Rs. 3,000 spent on lighting, Rs. 9,000 on drainage, Rs. 19,000 on conservancy, Rs. 7,000 on medical relief, Rs. 4,000 on roads, and Rs. 2,000 on education. The town contains 37 miles of metalled and 18 miles of unmetalled roads.

The chief buildings are the courts, which occupy the site of the old Danish Government House, the school (late the college), the Danish (now the English) church built by subscription in 1805, the Mission chapel, the Roman Catholic chapel, a sub-jail with accommodation for 28 prisoners, which was formerly the Danish courthouse, a dispensary with 42 beds, and the temples of Rādhāballabh at Ballabhpur and of Jagannāth at Māhesh. The former college, which was founded by the three Serampore missionaries, is now a high school. It possesses a fine library in which are several historic pictures, and had 312 boys on the rolls in 1902; attached to it is a training school for native pastors of the Baptist Church. There are 3 other high schools, 6 middle vernacular schools, and 15 primary schools, of which 4 are for girls. A public library is maintained by subscriptions.

Syāmbāzār.—Village in the Arāmbāgh subdivision of Hooghly District, Bengal, situated in 22° 54′ N. and 87° 34′ E. Population (1901), 3,494. Its weavers are famous for their *tasar* silk fabrics, and it carries on some trade in *tasar* cocoons and ebony goods. Badanganj, a village about a mile distant, has a large timber trade. It has an old *sarai* or resthouse dating, according to an inscription on it, from 1747.

Tārakeswar.—Village in the Serampore subdivision of Hooghly District, Bengal, situated in 22° 53′ N. and 88° 2′ E. Population (1901), 1,032. Tārakeswar is famous for its shrine dedicated to Siva, which is resorted to by large crowds of pilgrims all the year round. This temple is richly endowed with money and lands, supplemented by the offerings of wealthy devotees. It is under the management of a *mahant* or priest, who enjoys its revenues for life. Two large religious gatherings are held annually at Tārakeswar. The first of these, the Sivarātri, takes place in February; and the ceremonies enjoined on this occasion are considered by the followers of Siva to be the most sacred of all their observances. The three essential rites of the Sivarātri are: fasting during the day, holding a vigil during the night, and worshipping Siva as the

marvellous and interminable *lingam*, thereby typifying the exaltation of Siva-worship over that of Vishnu and Brahmā. It is estimated that 20,000 people visit the shrine on the occasion of this festival. A fair held at the same time continues for three days. The second great religious festival is the Chaitra Sankrānti (or New Year's eve) falling in April, which is also the day of the swinging festival. The temple is then visited by persons who come for penance, or to lead a temporary ascetic life, in fulfilment of vows made to Siva at some crisis of their lives. The swinging festival of the present day is a very harmless affair compared with what it was formerly; the votaries are merely suspended by a belt, instead of by hooks pierced through the flesh. The fair on this occasion lasts six days, and is attended by 15,000 people. A branch of the East Indian Railway from Seorāphulī to Tārakeswar was opened in 1885, and the village can also be reached by the Tārakeswar-Magrā Railway.

Tribenī ('Three streams').—Village in the head-quarters subdivision of Hooghly District, Bengal, situated in 22° 59′ N. and 88° 26′ E., and now included within the Bānsbāria municipality and connected with Magrā by a branch of the Bengal Provincial Railway. It derives its name from its situation at the junction of three rivers: the Ganges or Hooghly, the Saraswatī, and the Jamunā. The last-named stream flows into the Hooghly on its left bank, opposite the southern extremity of an extensive island in the middle of the river facing Tribenī. North of the Saraswatī is the Tribenī *ghāt*, a magnificent flight of steps attributed to Mukund Deo, the last of the Gajapati kings of Orissa, 1559–68. South of the *ghāt* lies the village of Tribenī, which is considered to possess great sanctity. The Rev. Mr. Long, in an article in the *Calcutta Review* published many years ago, says that Tribenī was one of the four great centres of Hindu learning, the others being Nabadwīp, Sāntipur, and Guptipāra. Tribenī formerly contained over thirty Sanskrit schools, and it was also once noted for its trade.

South of Tribenī village stands a famous mosque, built with materials obtained from an older Hindu temple, which contains the tomb of Jafar Khān, described by the late Professor Blochmann in the *Journal of the Asiatic Society of Bengal*, vol. xxxix, part i, for 1870, p. 282. The principal Hindu festivals held at Tribenī are the following: Makara Sankrānti or Uttarāyan, the day on which the sun enters Capricorn, takes place in January on the last day of the Hindu month of Paus

and the first day of the succeeding month of Māgh—the great bathing festival on Sāgar Island is held at this time, and a *mela* or fair at Tribenī, which is attended by about 8,000 persons—Bisuva Sankrānti, held in honour of the Sun at the time of the vernal equinox, falling in February; Bāruni, the great bathing festival of Bengal, in honour of Varuna, the god of the waters, held in February or March; Dasaharā, held in June, in commemoration of the descent of the goddess Gangā from heaven, to save the souls of the 60,000 sons of king Sagar, who were reduced to ashes for the crime of assaulting a Brāhman sage; Kārtik Pūjā, held in November, in honour of Kārtikeya, son of the goddess Durgā. All these gatherings form occasions for trade.

Uttarpāra.—Town in the Serampore subdivision of Hooghly District, Bengal, situated in 22° 40′ N. and 88° 21′ E., on the bank of the Hooghly river, immediately north of Bally in Howrah District. Population (1901), 7,036. Uttarpāra was the family residence of the enlightened *zamīndār*, Jay Krishna Mukharjī, and has a public library. This institution is especially rich in works on local topography and books published in India. It consists in part of the library slowly amassed by the *Hurkāru* newspaper in Calcutta during the first half of the nineteenth century. The building is in the pillared Italian style, and is one of the most imposing edifices on the Hooghly. The town also contains a college and a charitable association known as the Uttarpāra Hitakāri Sabhā, aided by Government. Uttarpāra was constituted a municipality in 1865. The income during the decade ending 1901–2 averaged Rs. 14,000, and the expenditure Rs. 13,000. In 1903–4 the income was Rs. 17,000, half of which was derived from a tax on houses and lands; and the expenditure was Rs. 17,500.

Boundaries, configuration, and river system.

Howrah District (*Hābara*).—Small District in the Burdwān Division of Bengal, lying between 22° 13′ and 22° 47′ N. and 87° 51′ and 88° 22′ E., with an area of 510 square miles. Howrah, which is a separate magisterial charge, is for revenue purposes subordinate to HOOGHLY DISTRICT, by which it is bounded on the north; its western and eastern boundaries are the Rūpnārāyan and the Hooghly rivers, which separate it from Midnapore and the Twenty-four Parganas and meet at its southern angle.

The District is intersected from north to south by the DĀMODAR, which falls into the Hooghly opposite Faltā Point. There are many small streams and watercourses, the principal being the Kāna Dāmodar, a tributary of the river of that

name, which rises near Tārakeswar in Hooghly District, and falls into the Dāmodar at Amtā; the Saraswatī, at one time the main channel of the Ganges but now merely a branch of the Hooghly, which it leaves near Tribenī and, after flowing southwards through Howrah, rejoins at Sānkrail; and the Gaighāta Bakshi Khāl, which connects the Rūpnārāyan and Dāmodar. The District is studded with depressions lying between the larger rivers, the most important being the Rājāpur marsh between the Hooghly and Dāmodar, which is now being gradually drained; towards the south the country lies so low as to require protection by costly Government and private embankments.

The surface is covered with alluvium, consisting chiefly of sandy clay and sand. Geology.

The vegetation is composed almost exclusively of the aquatic and marsh plants to be met with in rice-fields, such as *Hydrilla*, *Utricularia*, *Caesulia*, or of those semi-spontaneous plants that form the village shrubberies of Central Bengal, such as *Glycosmis*, *Trema*, *Urena*, *Solanum*, *Datura*, *Leonotis*, and the like. Waste places are generally covered with a weedy vegetation; and one of the striking features is the extent to which such weeds as occur in these places are exotic so far as Bengal is concerned, many of them, such as *Scoparia*, *Ageratum*, *Evolvulus nummularius*, and *Peperomia pellucida*, being originally natives of America. Botany.

Wild hog abound in the south, and a stray leopard is occasionally seen. Fauna.

Humidity is high, but the rainfall is rarely excessive, the average yearly total being 57 inches, of which 5·5 inches fall in May, 10·2 in June, 12 in July, 12·3 in August, and 8·1 in September. The climate resembles that of Calcutta and the Twenty-four Parganas; separate statistics of temperature are not available. Climate, temperature, and rainfall.

The District is subject to floods, owing to the sudden rising of the Dāmodar and Rūpnārāyan rivers; and destructive inundations occurred in 1823, 1833, and 1864. Embankments were formerly maintained along both banks of the Dāmodar; but they were breached almost every year, and those along the right bank were eventually abandoned in order to preserve those on the left bank of the river. In September, 1900, an abnormal rainfall of 24 inches in 48 hours caused extensive floods. Many cattle were drowned, and hundreds of houses destroyed, and the rice crop was ruined over an area of 150 square miles. Destructive cyclones occurred in 1832, Natural calamities.

1833, 1842, and 1864, the last wrecking several vessels in the Hooghly. The great earthquake of 1897 caused much damage to brick-built houses in Howrah city.

History. Howrah, with the rest of the Burdwān Division and the District of Bīrbhūm, formed part of the old Hindu province of Bengal known as Rārh, but very little authentic information exists regarding its early history. The neighbourhood of Howrah city has long been a centre of European trade. When the Portuguese began to frequent the Hooghly river, about 1530, an important mart sprang up at Betor, close to Sibpur, where goods were transhipped from their vessels into small boats in which they were carried to SĀTGAON, near the modern town of Hooghly. Betor was abandoned towards the end of the sixteenth century in favour of Sūtānuti, the site of the modern Calcutta. In 1687 Job Charnock settled temporarily at Ulubāria before he founded Calcutta. In 1819 Hooghly and Howrah were separated from Burdwān, of which they had previously formed part, and made into a separate District. Howrah is still an apanage of Hooghly for revenue purposes, but in 1843 it was constituted a separate magisterial charge.

The people. The population increased from 635,878 in 1872 to 675,394 in 1881, to 763,625 in 1891, and to 850,514 in 1901. Malaria is prevalent in rural areas owing to the bad drainage, and the mortality from cholera, dysentery, and diarrhoea is also high.

Details of the population in 1901 for each subdivision are shown below:—

Subdivision.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Howrah . .	173	2	365	431,257	2,493	+ 17·7	52,136
Ulubāria . .	337	...	1,086	419,257	1,244	+ 5·5	45,865
District total	510	2	1,451	850,514	1,668	+ 11·4	98,001

NOTE.—Ulubāria town has been created a municipality since the Census of 1901.

In 1901 a fifth of the population was urban, dwelling in the two towns of HOWRAH and BALLY, which are industrial suburbs of Calcutta. In the whole District there are 1,668 persons per square mile; excluding Howrah and Bally the density is 1,351, which is still greater than that of any other District in Bengal. Nearly half the increase in the decade ending 1901 was due to the exceptional expansion of HOWRAH

CITY. Howrah gains largely by immigration from all the neighbouring Districts, except Calcutta, and also from the United Provinces and Bihār. Most of these immigrants are attracted by the mills, iron-works, and other industries in Howrah city, and barely a third of the inhabitants of this busy manufacturing centre are District born. The local vernacular is the dialect of Central Bengal. Hindus number 672,544, or 79 per cent. of the total, and Muhammadans 175,123, or 20·6 per cent.; among the remainder are 2,588 Christians.

Castes and occupations.

Nearly all the Muhammadans are Shaikhs, while Kaibarttas (231,000), the great race-caste of Midnapore, constitute more than two-thirds of the Hindus. Brāhmans (52,000) and the semi-aboriginal Bāgdis (73,000) are also numerous. Of the total population, 42 per cent. are supported by agriculture, 26 per cent. by industries, 2·3 per cent. by commerce, and 3·7 per cent. by the professions. The proportion of agriculturists is lower, and that of the industrial population higher, than in any District outside Calcutta, many of the people even in the rural areas going daily to work in the metropolis.

Christian missions.

The majority of the Christians are Europeans and Eurasians employed in Howrah city; and in 1901 native Christians numbered only 579. The Church of England Zanāna Mission maintains three girls' schools in Howrah attended by 327 pupils, and a Baptist mission and a branch of the Oxford University Mission also work there. The Church Missionary Society supports a resident missionary for evangelistic work among the Hindī-speaking population. A small American mission belonging to a community calling itself 'The Church of God' is established in Ulubāria.

General agricultural conditions and principal crops.

The agricultural statistics for 1903-4 are shown below, in square miles:—

Subdivision.	Total.	Cultivated.	Cultivable waste.
Howrah . . .	173	58	7
Ulubāria . . .	337	120	16
Total	510	178	23

Owing to the silt deposited by the rivers, the soil is very fertile. The staple product is rice, the winter crop being by far the most important, but wheat, barley, maize, mustard, jute, and hemp are also grown. Fodder is abundant, though there are few regular pasture-grounds. A market held at Ulubāria every Saturday is largely frequented by dealers in

cattle and poultry. Six fairs are held to which agricultural produce is brought for sale, the chief being the Rām Krishna Paramhansa *mela*. The District is not liable to famine; and the people as a whole are so well off that there is no need for advances under the Loans Acts, except when the crops are damaged by floods.

Irrigation. The Howrah, Rājāpur, and Barajalā drainage schemes described below serve also for irrigation purposes in years of drought, when water is let in from the rivers. Some lands on the banks of the Kāna Dāmodar are occasionally watered from the EDEN CANAL.

Arts and manufactures. Domestic industries are few and unimportant. Hand-made paper of an inferior quality is produced on a small scale in the Amtā *thāna*. Silkworms are still reared in some parts, the thread being taken to Calcutta and Ghātāl for sale; but the industry is dying out, the annual value of the silk being estimated at only Rs. 12,500. Earthenware articles are made throughout the District, and the pottery of Sānkrail, Patihal, Chandīpur, and Bally has a local repute, the annual out-turn being valued at Rs. 1,17,030. Tiles are made at Barrackpur in the Bally *thāna*.

But, if home industries are insignificant, the case is far otherwise with industries dependent on European methods and worked with European capital. The bank of the Hooghly is lined with no less than 56 factories, employing 51,000 hands. These include 6 cotton-mills, 9 jute-mills, 7 jute-presses, 2 paper-mills, 3 flour-mills, 5 railway workshops, 4 engineering workshops, 4 iron-works, 4 rope-works, 4 dockyards, 2 salt-crushing mills, a printing press, lime-works, and cement-works. In 1903–4 the cotton-mills contained 176,100 spindles, employed 4,400 hands, and turned out 18,000,000 lb. of goods valued at 56 lakhs. The jute-mills with 84,000 spindles and 4,060 looms employed 27,000 hands, and manufactured goods to the value of 251 lakhs. The paper-mills at Bally produced paper worth $13\frac{1}{2}$ lakhs. In addition to the larger iron-works mentioned above, 16 small firms managed by native agency purchase pig-iron and scrap-iron in Calcutta, and manufacture weights, sugar-cane presses, rollers, bolts, plant for oil- and jute-mills, building and carriage material, railings, iron safes, &c., the out-turn being valued in 1901 at 1·39 lakhs. Bricks are extensively manufactured along the right bank of the Hooghly and the Bally Khāl, where 91 brick-fields employ 2,660 hands and produce an out-turn valued at nearly 4 lakhs. About a third of the brick-fields are worked by native

methods, but the use of pug-mills and Bull's patent kilns is spreading.

Commerce.

For commercial purposes the District forms part of Calcutta. Howrah city is the terminus of both the East Indian and the Bengal-Nāgpur Railways, which connect Calcutta with Upper India, with Bombay, and with Nāgpur and Madras. The chief articles of export are rice, vegetables, betel-leaf, sugar-cane, wheat, flour, coco-nuts, *hukkas*, hides, cotton cloth, cotton twist, silk, bricks, and ropes. The chief imports are rice, wheat, pulses, oilseeds, European piece-goods, kerosene oil, jute, hemp, *ghī*, sugar, spices, cotton, cotton twist and yarn, wine and other liquors, salt, tobacco, timber, iron, straw, potatoes, shoes, and glass. The chief centres of trade are HOWRAH CITY, BALLY, GHUSURĪ, SĀLKHIA, SĀNKRAIL, ULUBĀRIA, and AMTĀ.

Railways and roads.

Besides the two great railways mentioned above, the Howrah-Sheakhāla and Howrah-Amtā Light Railways have opened out tracts in the north and north-west which were formerly difficult of access. An extension of the Amtā line from Jagatballabhpur to Champādānga has been sanctioned. The grand trunk road leading north from Sibpur, and the Orissa trunk road, which in this District runs from Ulubāria to the Rūpnārāyan river, are maintained from Provincial funds, their aggregate length in the District being 25 miles. Exclusive of these and of the roads within Howrah and Bally municipalities, the District contains 117 miles of road, of which 35 are metalled, and 441 miles of village tracks.

Water communications.

Before the opening of the Cuttack branch of the Bengal-Nāgpur Railway, the MIDNAPORE CANAL formed the main route between Calcutta and Midnapore. The first two reaches of this canal, running westwards from Ulubāria on the Hooghly to the Dāmodar and thence to the Rūpnārāyan, lie within the District. The two latter rivers are also connected by the GAIGHĀTA BAKSHI KHĀL, an improved natural waterway. Other navigable channels are the Bally Khāl, which runs from the Dānkuni marsh into the Hooghly at Bally and forms the main outfall of the Dānkuni drainage, and the Sānkrail, Kālsāpa, Mithākunda, and Pukuriā Khāls. Inland navigation is carried on in small country boats; and daily steamer services connect Calcutta with Rājganj, Ulubāria, Ghātāl (via Ulubāria), and Kālna (via Bally and Uttarpāra), all of which serve places within the District.

District subdivi-

It has already been mentioned that Howrah, when made a separate magisterial charge, continued for revenue purposes

sions and staff.

to form part of Hooghly. Land revenue and cesses are still paid there; but the Magistrate of Howrah has been appointed a Deputy-Collector and declared independent of Hooghly with regard to excise, land acquisition, salt, income-tax, treasury, and stamps. He is assisted by a staff of one Joint-Magistrate and three or four Deputy-Magistrate-Collectors, while another Deputy-Collector, assisted by a Sub-Deputy, is in charge of the Ulubāria subdivision. Howrah city is the head-quarters of an Assistant Inspector-General of railway police.

Civil and criminal justice.

The administration of civil justice is controlled by the District Judge of Hooghly. The District shares with Hooghly a Small Cause Court Judge, assisted by a Registrar, for the disposal of petty money claims; and there are five Munsifs, of whom three are stationed in Howrah city, and one each at Amtā and Ulubāria. Sessions cases are tried by the Additional Judge of the Twenty-four Parganas. Howrah, with its large labour force and fluctuating population, is a convenient centre for criminals; and it is largely frequented by professional thieves from up-country.

Land revenue.

The approximate rent paid by the actual cultivator to his immediate landlord is Rs. 13 per acre for rice lands, Rs. 26 for sugar-cane fields, Rs. 22 for jute lands, and Rs. 16 for autumn rice lands. The land revenue and cess accounts are included in those of Hooghly District, and it is only in recent years that those for revenue from other sources were made separate. The latter amounted to Rs. 4,06,000 in 1901–2 and to Rs. 4,62,000 in 1903–4.

Local and municipal government.

Outside the municipal towns of HOWRAH, BALLY, and ULUBĀRIA, local affairs are managed by the District board, with subordinate local boards at Howrah and Ulubāria. In 1903–4 the income of the District board was Rs. 1,13,000, of which Rs. 39,000 was derived from rates; and the expenditure was Rs. 1,04,000, half of which was spent on public works. The Howrah District board was the pioneer in introducing light railways in Bengal; the railways from Howrah to Amtā and to Sheakhāla were constructed under a guarantee of 4 per cent. interest on the capital, the board receiving half of any profits earned in excess of that amount. The board has profited handsomely by the former railway.

Public works.

The embankments along the Dāmodar and on the south bank of the Gaighāta Bakshi Khāl have a total length of 37 miles, and there are 6 miles of *takāvi* embankment on the left bank of the Mādāria Khāl. Large areas have been drained by the Rājāpur, Howrah, and Barajalā drainage

schemes, the works consisting of drainage channels with sluices leading into the Hooghly. These serve also as a protection against drought, as they afford a means of irrigation in years of deficient rainfall. The Hooghly is spanned by a pontoon bridge, which is described in the article on CALCUTTA, and the Dāmodar and Rūpnārāyan have been bridged near their mouths by the Bengal-Nāgpur Railway. At Sibpur are situated the Botanical Gardens, which are beautifully laid out along the Hooghly and are stocked with both ornamental and useful plants. They were founded in 1788, at the instance of Colonel Alexander Kyd, for the collection of plants indigenous to the country, and for the introduction and acclimatization of foreign species. This object has been fully realized, and the gardens are a centre of botanic science for all India. They cover 272 acres and contain a fine herbarium, a botanical library, and monuments to the first two Superintendents, Kyd and Roxburgh.

Police and jails.

The District contains 18 police stations and 14 outposts. The police force subordinate to the District Superintendent in 1903 (including extra police) consisted of 5 inspectors, 25 sub-inspectors, 47 head constables, and 688 constables; there was also a rural police force of 132 *daffadārs* and 1,374 *chaukīdārs*. There was one policeman to every 0·8 square mile of area and to every 1,431 persons. Subsidiary jails at Howrah city and Ulubāria have an aggregate accommodation for 61 prisoners.

Education.

In 1901 the proportion of literate persons was 11·5 per cent. (21·2 males and 1·2 females), the proportion for males being exceeded in Bengal only in the case of Calcutta. The total number of pupils under instruction was 33,200 in 1892–3 and 33,464 in 1900–1. In 1903–4, 39,301 boys and 2,331 girls were at school, being respectively 59·6 and 3·7 per cent. of the children of school-going age. The number of educational institutions, public and private, in 1903 was 940, including 58 secondary, 829 primary, and 53 special schools. The expenditure on education was 3·62 lakhs, of which 1·48 lakhs was contributed by Government, Rs. 24,000 by the District board, and Rs. 6,000 by municipalities, while 1·58 lakhs was derived from fees. The principal educational institution is the Civil Engineering College at Sibpur.

Medical.

In 1903, excluding the General Hospital in Howrah city, the District contained 5 dispensaries, of which 2 had accommodation for 9 in-patients; the cases of 25,000 out-patients and 169 in-patients were treated, and 1,583 operations were

performed. The expenditure was Rs. 9,000, of which Rs. 200 was met from Government contributions, Rs. 3,000 from Local and Rs. 1,300 from municipal funds, and Rs. 4,000 from subscriptions.

Vaccination. Vaccination is compulsory only within the municipal areas. Elsewhere vaccination is backward, and the number of successful vaccinations in 1903–4 was only 21,500, or 25 per 1,000 of the population.

[Sir W. W. Hunter, *Statistical Account of Bengal*, vol. iii (1876); and C. N. Banerjee, *Account of Howrah, Past and Present* (Calcutta, 1872).]

Howrah Subdivision.—Head-quarters subdivision of Howrah District, Bengal, lying between 22° 30′ and 22° 42′ N. and 88° 2′ and 88° 22′ E., with an area of 173 square miles. The subdivision is a level plain, bounded on the east by the Hooghly river, and containing numerous swampy depressions farther inland. The population in 1901 was 431,257, compared with 366,296 in 1891, the density being 2,493 persons per square mile. It contains two towns, HOWRAH (population, 157,594), the head-quarters, and BALLY (18,662); and 365 villages.

Ulubāria Subdivision.—Southern subdivision of Howrah District, Bengal, lying between 22° 13′ and 22° 47′ N. and 87° 51′ and 88° 12′ E., with an area of 337 square miles. The subdivision is a low-lying alluvial tract, watered by the Hooghly, Rūpnārāyan, and Dāmodar. The population in 1901 was 419,257, compared with 397,329 in 1891, the density being 1,244 persons per square mile. It contains one town, ULUBĀRIA (population, 5,395), the head-quarters; and 1,085 villages.

Amtā.—Village in the Ulubāria subdivision of Howrah District, Bengal, situated in 22° 35′ N. and 88° 1′ E., on the Dāmodar river. Population (1901), 210. Amtā is a considerable trade centre, and is connected with Howrah by a light railway, of which it is the terminus.

Bally (*Bāh*).—Town in the head-quarters subdivision of Howrah District, Bengal, situated in 22° 39′ N. and 88° 21′ E., on the bank of the Hooghly. The population increased from 13,715 in 1872 to 14,815 in 1881, 16,700 in 1891, and 18,662 in 1901. Bally is a flourishing town, containing paper- and bone-mills. It is a station on the East Indian Railway, 7 miles from Calcutta, and a place of call for a daily service of steamers between Calcutta and Kālna. The Bally Khāl, which forms the main drainage channel of the Dānkuni

marshes, here debouches into the Hooghly, and along its right bank is a very large brick-making industry. Bally was constituted a municipality in 1883. The income during the decade ending 1901–2 averaged Rs. 20,000, and the expenditure Rs. 18,000. In 1903–4 the income was Rs. 32,000, half of which was derived from a tax on houses and land; and the expenditure was Rs. 29,000. The municipality maintains 15 miles of metalled and 13 miles of unmetalled roads.

Ghusurī.—Northern suburb of Howrah city in Howrah District, Bengal, containing jute and cotton-mills, jute-presses, and rope-works. The last, founded a century ago, forms the oldest factory industry in the town. Ghusurī is a permanent market, with a large trade in agricultural produce.

Howrah City.—Head-quarters of Howrah District, Bengal, situated in 22° 35′ N. and 88° 21′ E., on the right bank of the Hooghly, opposite Calcutta. The city, which stretches for 7 miles along the banks of the river and includes the important suburbs of Sibpur, Ghusurī, Sālkhia, and Rāmkrishnapur, is now a great industrial suburb of Calcutta, of comparatively modern growth. In the sixteenth century a market sprang up at Betor, near Sibpur, where the Portuguese used to tranship their goods from their sea-going vessels into the small river craft which ascended the Hooghly to Sātgaon. Towards the end of the century Betor was deserted in favour of Sūtānuti, the site of the modern Calcutta. In 1785 Howrah was a small village held by one Mr. Lovett, who found it so unprofitable that he petitioned to be allowed to relinquish it. The Nawāb Nāzim's artillery park was at one time stationed here; and the artillery practising ground is shown in old maps, north of the railway, where the most densely populated part of the city now is. The Government salt *golās* were located within the limits of the town, and it gradually grew in importance until in 1843 it became the seat of a separate Magistracy. In 1853 a further impetus was given to its development by the establishment here of the terminus of the East Indian Railway, the first section of which was opened to traffic in 1854. In 1874 the pontoon bridge was opened, and the improved communication with Calcutta thus afforded enabled many of the people employed in the metropolis to reside on the right bank of the Hooghly. Meantime, there had been a continuous development of various large industries conducted according to European methods, of which the rope-works at Ghusurī and Shalimār, founded a century ago, are probably the oldest.

Industries.

Then followed iron foundries and engineering works, and subsequently the rise of the jute and cotton-spinning industries, until at the present time there are no less than forty registered factories working within municipal limits.

Population. Excluding 13,715 persons in Bally, which then belonged to Howrah but has since been made a separate municipality, the population in 1872 was 84,069. In 1881 it had grown to 90,813, and in 1891 to 116,606, while at the Census of 1901 it was 157,594, or 35 per cent. more than in 1891 and nearly 87 per cent. more than in 1872. This rapid expansion is due almost entirely to the great industrial development that has taken place. The growing demand for labour has been met by immigration, about two-thirds of the inhabitants being immigrants, chiefly from up-country. More than 33,000 come from the United Provinces, and about 25,000 from Bihār. Among these foreigners there is an enormous excess of males, who outnumber the females in the ratio of 2 to 1. They are for the most part operatives in the mills, who return home as soon as they can afford to do so. In the meantime, they live huddled together in crowded lodging-houses. This overcrowding is not a necessary condition in Howrah, as there is ample room for building at no great distance from the centres of industry. It proceeds partly from the desire of the operatives to live as near as possible to their work, partly from their poverty which leaves them little to spare for rent, and partly from the pressure of municipal taxation which falls heaviest on huts and discourages the construction of new ones, unless there is a certainty of their being kept full of lodgers. With the exception of Calcutta, Howrah is now the most populous city in Bengal. Of the total population, 73·6 per cent. are Hindus and 24·9 per cent. Muhammadans, while there are 2,282 Christians and 71 followers of other religions.

Municipality. Howrah was constituted a municipality in 1862. The income during the ten years ending 1901–2 averaged 5·86 lakhs, and the expenditure 5·40 lakhs. The rapid growth of the population has led to a great increase in the value of house property and land, and the income has more than doubled during the decade, amounting in 1903–4 to 9·71 lakhs, of which 1·83 lakhs was derived from a tax on houses and property, 1·49 lakhs from a conservancy rate, 1·33 lakhs from a water rate, Rs. 55,000 from a lighting rate, Rs. 12,000 from a tax on vehicles, and Rs. 52,000 as rent from lands and other municipal property. The incidence of taxation was Rs. 3–6–6 per head of the population. In the same year the

expenditure was 6·10 lakhs, including Rs. 60,000 spent on lighting, Rs. 97,000 on water-supply, Rs. 18,000 on drainage, Rs. 1,79,000 on conservancy, Rs. 55,000 on roads, Rs. 17,000 on medical relief, and Rs. 5,000 on education. Portions of the city have been lit with gas for more than 25 years, and the system is being extended; but the greatest recent improvement was the introduction in 1896 of a filtered water-supply from water-works, filters and pumping stations having been constructed at Serampore. The city had previously suffered very severely from water famines and from cholera; but since the opening of the water-works the former have ceased, and the latter has not appeared in epidemic form. On the other hand, the general death-rate has risen. The city lies low, and the amount of stagnant water has greatly increased since the water-works were opened. It is in urgent need of an efficient system of drainage. The municipality maintains 50 miles of metalled and 4 miles of unmetalled roads.

Public works. Howrah is the terminus of both the East Indian and the Bengal-Nāgpur Railways, which bring down the coal and other products of the western Districts and connect Calcutta with the general railway system of Upper India and the Peninsula. It is also the terminus of the Howrah-Amtā and Howrah-Sheakhāla Light Railways. It is connected with Calcutta by a floating pontoon bridge (*see* CALCUTTA). The chief public buildings are the Magistrate's office, the civil courts, the District board and municipal offices, the Howrah General Hospital, the Sibpur Civil Engineering College, and the Howrah District school. The jail has accommodation for 18 convicted and 31 under-trial prisoners.

Police. For police purposes the city is divided into 3 *thānas*, Howrah, Golābāri, and Sibpur; and the police force in 1904 consisted of 3 inspectors, 5 sub-inspectors, 18 head constables, and 345 constables.

Education. The principal educational institution is the Civil Engineering College at Sibpur, which occupies the buildings and premises of the old Bishop's College, now transferred to Calcutta. The college contains four departments. In the Engineer department, the course extends over four years, after which the pupils have to undergo a further period of one year's practical training under the Public Works department to obtain the final college certificate; a certain number of the successful graduates receive appointments in Government service. The course in the Apprentice department lasts for five years, but those leaving after three and a half years are

entitled to third-grade overseers' certificates. The Artisan class is chiefly for the benefit of sons of *mistris* (carpenters), and a stipend of from R. 1 to Rs. 3 a month is given to those who turn out satisfactory work. The Agricultural class is to be transferred to the Imperial Institution at Pūsa. The total number of pupils under instruction in 1903–4 was 386, and the expenditure amounted to Rs. 1,50,000, of which Rs. 1,28,000 was met from Provincial funds and the balance from fees.

Medical. The Howrah General Hospital has 112 beds; and in 1903 1,848 in-patients and 13,000 out-patients were treated, and 1,521 operations were performed. The expenditure amounted to Rs. 34,000, of which Rs. 6,000 was contributed by Government, Rs. 10,000 from Local funds, Rs. 5,000 from municipal funds, and Rs. 9,000 from subscriptions.

Sālkhia.—Northern suburb of Howrah City, Bengal, containing docks, Government salt godowns, salt crushing-mills, jute-presses, and engineering and iron works.

Sānkrail.—Village in Howrah District, Bengal, situated in 22° 34′ N. and 88° 14′ E., on the bank of the Hooghly. It contains jute-mills and cement works, and pottery of some local repute is also manufactured. The Sānkrail Khāl, which here enters the Hooghly river, forms a means of communication with the interior of Hooghly District.

Sibpur.—Southern suburb of HOWRAH CITY, Bengal, opposite Fort William. During the last century the place has grown from a small village into a flourishing town, possessing jute-mills, flour-mills, and engineering and rope works. On the river side, to the south, are the Royal Botanical Gardens, among the finest of their kind in the world. A fort was erected here in the sixteenth century to defend the shipping from the piratical incursions of the Maghs or Arakanese. A little above the gardens stands the Sibpur Engineering College.

Ulubāria Town.—Head-quarters of the subdivision of the same name in Howrah District, Bengal, situated in 22° 28′ N. and 88° 7′ E., on the bank of the Hooghly river, 15 miles south of Howrah. Population (1901), 5,395. Ulubāria is the starting-place of the MIDNAPORE CANAL, and a station on the Bengal-Nāgpur Railway. The road to Midnapore and Orissa crosses the Hooghly at this point by a ferry. Daily services of steamers run from Calcutta to Ulubāria, and also via Ulubāria to Ghātāl. A large weekly cattle market is held here. Ulubāria was constituted a municipality in 1903. In 1903–4

the income was Rs. 3,000, of which Rs. 2,000 was derived from a tax on persons (or property tax); and the expenditure was Rs. 2,600. The town contains the usual public offices; the sub-jail has accommodation for 10 prisoners. In 1687 Job Charnock settled at Ulubāria for a short time before laying the foundation of Calcutta.

PRESIDENCY DIVISION

Presidency Division.—Commissionership of Bengal, extending from the Ganges on the north to the Bay of Bengal on the south, and lying between 21° 31′ and 24° 52′ N. and 87° 49′ and 89° 58′ E. The head-quarters of the Commissioner are at CALCUTTA, and the Division includes six Districts with area, population, and revenue as shown below:—

District.	Area in square miles.	Population, 1901.	Land revenue and cesses, 1903–4, in thousands of rupees.
Twenty-four Parganas	4,844	2,078,359	20,32
Calcutta . . .	32	847,796	18
Nadiā . . .	2,793	1,667,491	10,94
Murshidābād . .	2,143	1,333,184	12,14
Jessore . . .	2,925	1,813,155	10,60
Khulnā . . .	4,765	1,253,043	9,24
Total	17,502	8,993,028	63,42

NOTE.—Calcutta is not strictly speaking a District of the Presidency Division, but it is usual and convenient to treat it as such. In the *Census Report* of 1901 the area of the Twenty-four Parganas was shown as 2,108 square miles, excluding the Sundarbans; the area given above, supplied by the Surveyor-General, includes 2,941 square miles in the Sundarbans. The area of Khulnā similarly includes 2,688 square miles in the Sundarbans.

The population was 7,427,343 in 1872 and 8,211,986 in 1881; in 1891 it had grown to 8,535,126 and in 1901 to 8,993,028. The average density is 514 persons per square mile, compared with 474 for Bengal as a whole. Fifty per cent. of the population are Hindus and 49 per cent. Musalmāns; the remaining 1 per cent. includes 62,416 Christians, of whom 30,993 are natives, 12,842 Animists, 3,005 Buddhists, 2,245 Jains, and 1,938 Brahmos. The area of the Division, which is known as Central Bengal, corresponds approximately to the old kingdom of Banga or Samatata, and to Ballāl Sen's division of Bāgri (or Bāgdi). The Division is bounded on the west by the Bhāgīrathi river and on the east by the Madhumatī, and forms the western extremity of the Ganges delta. Its northern Districts have been gradually raised above flood-level; and the great rivers which formerly flowed through them have shrunk to insignificance, and no longer fulfil their

old functions of depositing silt and supplying good drinking-water. Their head-waters have been silted up and their channels are often so high that they are no longer able to carry off the drainage of the surrounding country, which has thus become far less healthy and fertile than it was formerly. The District of Khulnā is an exception to these conditions and still forms part of the true delta. Along the sea-coast, in the south of the Twenty-four Parganas and Khulnā District, the SUNDARBANS extend over an area of 5,629 square miles. This tract is a region of low-lying islands, intersected by a network of rivers and cross channels. In the north it is being gradually reclaimed for cultivation, while in the south it is covered with valuable forests, and on the sea-board the process of land-making is still going on. Central Bengal possesses few distinctive ethnical features; but its southern portion is the main habitat of the Pods, who are closely allied to the Chandāls, and who with them are probably the descendants of the first of the Mongolian invaders from the north-east. The Kaibarttas and Bāgdis have overflowed from Western Bengal, and the Chandāls from the east.

The Division contains 46 towns and 20,496 villages. The urban population forms 16 per cent. of the whole; the greater part of it is found in Calcutta and in its great industrial suburbs on the banks of the Hooghly river. The principal industries in these towns are the manufacture of gunny-bags, the baling of jute for export, paper-making, and cotton-spinning. Murshidābād District is a seat of the silk industry. The largest towns are CALCUTTA (population, 847,796), with its suburbs COSSIPORE-CHITPUR (40,750), MĀNIKTALA (32,387), GARDEN REACH (28,211), SOUTH SUBURBS (26,374), and BARANAGAR (25,432); SĀNTIPUR (26,898), KRISHNAGAR (24,547), BERHAMPORE (24,397), NAIHĀTI (13,604), and BHĀTPĀRA (21,540). Among its other towns may be mentioned NABADWĪP, an ancient capital of the Sen kings of Bengal; and MURSHIDĀBĀD, for many years the seat of the Muhammadan Nawābs. The early history of Calcutta is intimately associated with the beginning of British rule in India.

Twenty-four Parganas.—District in the Presidency Division of Bengal, lying between 21° 31′ and 22° 57′ N. and 88° 2′ and 89° 6′ E., with an area of 4,844 square miles, including 2,941 square miles in the Sundarbans. The District derives its name from the number of fiscal divisions (*parganas*) comprised in the *zamīndāri* of Calcutta, which was ceded to the East India Company in 1757, by Mīr Jafar, the Nawāb

Boundaries, configuration, and river system.

Nāzim of Bengal. It extends in a rectangular shape, some 50 miles in breadth, along the east bank of the Hooghly river from the Bāgher Khāl, 25 miles north of Calcutta, southwards to the sea. It is bounded on the north by the Districts of Nadiā and Jessore; on the east by Khulnā; on the west by the Hooghly river; and on the south by the Bay of Bengal. Calcutta covers an area of 32 square miles and is not included in the District, though the Collector of the Twenty-four Parganas is Collector of land revenue in Calcutta and exercises magisterial functions over the suburbs.

The District occupies the south-west corner of the Gangetic delta, and is divided into two tracts of very different characteristics by the boundary of the Sundarbans, which runs diagonally north-eastwards from a point on the western boundary near the head of Sāgar Island and cuts the eastern boundary in the latitude of Calcutta. South of this line extend the SUNDARBANS, a half-formed deltaic tract occupying three-fifths of the District, cut up by a network of tidal channels into innumerable islets, the more northerly of which are embanked and grow rich crops of rice, while a fringe along the coast is covered with mangrove scrub and forest. The northern tract is characteristic of the upper delta of Central Bengal: a land of dead and dying rivers, whose beds are out of reach of the scour of the tides; and of great rice swamps, which will never now be filled, because the rivers which should perform this office are locked within their channels by the high banks of silt which they have deposited.

Industrial activity is concentrated in a narrow strip of foreshore along the bank of the Hooghly river, extending from Budge-Budge, a few miles below Calcutta, to the northern limits of the District. This river frontage is densely populated, and almost every yard of it is occupied either by jute-mills or by crowded bazars. Behind this strip the level drops, the drainage is obstructed, and the country is unhealthy and decadent until the eastern limits of the District are approached. Here the Jamunā river causes another rise in the surface; and this tract closely resembles Eastern Bengal, and is inhabited by sturdy Muhammadans who raise abundant sugar-cane and jute crops. In the north, the monotonous level of the rice swamps is broken only by the clumps of palms and fruit trees among which the village hamlets nestle. The broad reaches of the Hooghly are alive with traffic, from the lumbering barge to the swift dinghy and noisy steam-launch, while the river banks present a diversified panorama of mill chimneys and

brick factories, interspersed with Hindu temples and the gardens of country houses.

The river system is derived from the Ganges and its distributaries, each river forming the centre of a minor system of interlacing distributaries of its own. Many of these change their names at different parts of their course, re-enter the parent channel, and then break away again or temporarily combine with other rivers until they reach their final stage as estuaries as they near the sea. The principal rivers are the HOOGHLY, Bidyādharī, Piāli, and JAMUNĀ, all navigable by the largest native boats throughout the year, besides the great estuaries in the Sundarbans. These arms of the sea, proceeding from east to west, are the Raimangal, Mātla, Jāmira, and the Hooghly, or Burhā Mantreswar, as the mouth is called locally. The original course of the Hooghly was identical with the present Tolly's Nullah as far as Gariyā, about 8 miles south of Calcutta, from which point it ran to the sea in a south-easterly direction. The old channel, which is still traceable for a considerable distance, has long ago dried up, and the bed now consists of a series of shallow pools. Many large Hindu villages are situated on the banks of the old stream, which is called the Adi or 'original' Gangā. The Bidyādharī is a tidal river which, after a circuitous course through the south-west of the District, flows into the Mātla estuary at Port Canning. The Piāli is a cross-stream from the Bidyādharī to the Mātla. The Jamunā flows across the north-east corner of the District and forms part of the eastern boundary. The so-called Salt-Water Lake is a low basin, east of Calcutta, which is slowly filling with silt deposited by tidal channels from the Bidyādharī. The Ballī *bīl* in the north-east of the District is being gradually drained and reclaimed.

The surface is covered with recent alluvium, consisting of sandy clay and sand along the course of the rivers, and fine silt consolidating into clay in the other parts of the river plain. Geology.

The stretches of low-lying land under rice cultivation afford a foothold for numerous marsh species, while the ponds and ditches are filled with submerged and floating water-plants. Remarkable among these, on account of its presence in Europe on the one hand and Australia on the other, is the floating *Drosera Aldrovanda*. The edges of sluggish creeks are lined with large sedges and bulrushes, and the banks of rivers have a hedge-like shrub jungle. The sides of embankments and village sites, where not occupied by habitations, are densely covered with shrubberies of semi-spontaneous species, often Botany.

interspersed with clumps of planted bamboos and groves of *Areca*, *Moringa*, *Mangifera*, and *Anona*. A very large proportion of the grasses and weeds have been inadvertently introduced by human agency, and include European, African, and American species.

Fauna.

The Sundarbans contain many deer and tigers, and the estuaries swarm with crocodiles. In the north, leopards are occasionally met with, and there are a few wild hog.

Temperature and rainfall.

The mean temperature for the year is 78°, varying from 66° in January to 86° in May. The highest mean maximum is 96° in April. The highest temperature recorded was 108° in 1901. Humidity is high throughout the year and rises to 90 per cent. in July. The normal rainfall for the year is 62 inches, of which 5·5 inches fall in May, 10·6 in June, 12·5 in July, 13·2 in August, 9·1 in September, and 5·3 in October. Less than two inches fall in each of the remaining months.

The cyclone of October, 1864, did immense damage in the south of the District. A storm-wave 11 feet high rushed over the Diamond Harbour subdivision, and the loss of life was estimated at 12,000. The earthquake of June, 1897, caused serious injury to masonry buildings in all parts of the District. The floods of September, 1900, resulted in widespread damage to the rice crops, especially in the ill-drained area between Calcutta and Diamond Harbour.

History.

In the dawn of history the country south of the Padmā between the Bhāgīrathi and the old course of the Brahmaputra was known as Vanga or Banga, a name since given to the whole Province. Its people are described in the *Raghubansa* as living in boats and as growing transplanted rice. The Twenty-four Parganas lay to the extreme south of this tract, and probably did not emerge from the waters of the Bay before the seventh century. Towards the end of the tenth century this country passed along with the rest of Bengal proper under the sway of the Sen dynasty, and in 1203 it was overrun by the Afghāns under Muhammad-i-Bakhtyār Khiljī. Nothing definite, however, is known of the District till 1495, when a Bengal poem mentions several still well-known riverside villages, including Calcutta, extending along the Adi Gangā river from Bhātpāra to Bāruipur.

In the sixteenth century the District formed part of the *sarkār* or division of Sātgaon, which embraced also portions of the present Hooghly and Nadiā Districts. Sātgaon on the Saraswatī, near the modern Hooghly, was at that time a great

emporium of trade; but when the Portuguese began to frequent the Hooghly river, about 1530, their ships could not sail with safety above Garden Reach, and their goods were sent up to Sātgaon in small boats. As the Saraswatī silted up, Sātgaon lost its importance; and in the middle of the sixteenth century native traders came and settled at Gobindpur, the site of the present Fort William in Calcutta. The Portuguese also established a mart at Sūtānuti, the heart of modern Calcutta. A century later the English, who had meanwhile established a factory at Hooghly, were compelled to retire to Sūtānuti; but it was not until 1690 that the foundations of the present Calcutta were definitely laid by Job Charnock. The rebellion of Subha Singh, in 1696, gave the opportunity for fortifying the town, and it became thenceforth the stronghold of British influence in Bengal.

After the battle of Plassey in 1757, the Nawāb Nāzim of Bengal, Mīr Jafar, ceded to the East India Company a tract of country which lay principally to the south of Calcutta and comprised about 882 square miles, known as the *zamīndāri* of Calcutta, or the Twenty-four Parganas *zamīndāri*. Under this grant the Company acquired the rights of a *zamīndār*; and in the following year they obtained, from the emperor's chief revenue officer, a *dīwāni sanad*, which particularized the land held by them and fixed the assessment at Rs. 2,22,958. In 1759 the emperor confirmed the grant by a *farmān*, which gave the Company a perpetual heritable jurisdiction over the land. Meanwhile, by a deed of gift executed in 1759, Lord Clive had been presented, as a reward for services rendered by him to the Nawāb Mīr Jafar, with the revenue of the District due from the Company; and this sum continued to be paid to him till his death in 1774, when, by a deed sanctioned by the Mughal emperor, the whole proprietary right in the land and revenues reverted to the Company.

BARRACKPORE cantonment, 15 miles north of Calcutta, played a part in two sepoy mutinies. In 1824 the 47th Regiment refused to start for Burma, fearing that they would be compelled to proceed by sea. European troops and artillery were marched from Calcutta, and the gunners opened fire upon the mutinous regiment, which broke and fled. Many of the mutineers were shot or hanged, and the regiment was disbanded. It was at Barrackpore also that the first sparks of the Mutiny of 1857 were kindled. The story of Mangal Pānde's outbreak and of the disbandment of the 34th Regiment is too well-known to need repetition.

The rebellion of Titu Miān is not so well-known. This man belonged to the Wahhābi sect of Muhammadan fanatics, and was excited to rebellion in 1831 by a beard-tax imposed by Hindu landholders. He collected a force of insurgents, 3,000 strong, and cut to pieces a detachment of Calcutta militia which was sent against him. The Magistrate collected reinforcements, but they were driven off the field. Eventually the insurgents were defeated by a force of regulars, and their stockade was taken by assault.

With these exceptions, the history of the District since its cession in 1757 has been uneventful, and is principally a record of constant boundary changes. These were all in the direction of increase until 1882, by which date the area had grown to 5,593 square miles. The transfer of the Sātkhira subdivision to Khulnā in that year reduced the District to its present proportions.

The people. The population of the present area increased from 1,581,448 in 1872 to 1,690,771 in 1881, to 1,891,288 in 1891, and to 2,078,359 in 1901. The birth- and death-rates are much lower than the mean for the whole of Bengal; a great preponderance of males is the reason for the low birth-rate, and a low death-rate is a corollary to a low birth-rate. Fever is responsible for the greater part of the deaths, but the mortality due to cholera is also considerable. The banks of the Hooghly are not unhealthy, as a good supply of drinking-water is obtained from the river, and the drainage passes easily to the low swamps to the eastward. The salt breezes from the Bay of Bengal prevent the growth of noxious undergrowth in the south, which is, however, liable to cholera owing to a deficient water-supply. The most unhealthy tract is the depressed area in the north, which is waterlogged owing to the silting up of the drainage channels, and mosquitoes breed freely in the stagnant pools that fester in all directions. The drinking-water is obtained from tanks polluted by surface drainage, and all the conditions favourable to the spread of the 'Nadiā fever' are present.

The principal statistics of the Census of 1901 are shown in the table on the next page.

No less than a fifth of the whole population is urban. Cossipore-Chitpur, Māniktala, Garden Reach, South Suburbs, and Tollygunge are suburban towns, which for the most part belonged to the Calcutta municipality until 1889. The head-quarters are at Alipore, within the limits of the Calcutta municipality. Other industrial towns are Baranagar (25,432) with Kāmārhāti adjoining it, Naihāti

with HĀLISAHAR and BHĀTPĀRA adjoining it, TITĀGARH, BUDGE-BUDGE, and GĀRULIA. BUDGE-BUDGE is south of Calcutta; but the remaining towns form, with South BARRACKPORE, North BARRACKPORE, and PĀNĪHĀTI, an almost unbroken line of river frontage northwards from Calcutta to near the confines of the District. North and South DUM-DUM include the Dum-Dum cantonment and its neighbourhood, and BASĪRHĀT and BĀRĀSAT are subdivisional headquarters.

Subdivision.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Alipore . . .	1,164	6	1,683	671,269	577	+ 11·8	77,301
Suburbs of Calcutta	10	3	...	101,348	10,135	+ 15·8	17,433
Barrackpore* . .	190	11‡	163	206,311	1,086	+ 5·2	35,626
Bārāsat . . .	275	2	724	264,300	961		18,005
Basīrhāt . . .	1,922	3	920	372,187	194	+ 7·2	28,111
Diamond Harbour.	1,283	...	1,575	460,748	359	+ 14·4	56,035
Sundarbans† . .	...	...	17	2,196	...	...	109
District total	4,844	25	5,082	2,078,359	429	+ 9·9	232,620

* Barrackpore subdivision was formed out of parts of the head-quarters and Bārāsat subdivisions in 1904.

† Most of the population of the Sundarbans has been included in the figures for the head-quarters and Basīrhāt subdivisions, within which the Sundarbans lie. There are a few woodcutters, &c., for whom separate census arrangements were made.

‡ Excluding Hālisahar, which was constituted a separate municipality in 1903.

The growth of the population has not been uniform throughout the District. The north-central *thānas* are stationary or decadent, owing to defective drainage and malarial conditions which are driving the inhabitants into Calcutta. On the other hand, a remarkable expansion has taken place in the industrial tract on the bank of the Hooghly river, while the rapid progress of reclamation has attracted numerous settlers to the Sundarbans. During the last decade the riparian population has grown by 12 per cent., and the Sundarbans population by no less than 24 per cent.; on the other hand, the northern and central *thānas* have remained stationary. The population is very dense along the Hooghly to the north of Calcutta; but the density for the whole District is low, owing to the inclusion of the sparsely inhabited Sundarbans, which cover 2,941 square miles, or three-fifths of its area.

The main tide of migration sets from the eastern Districts of the United Provinces and from Bihār to the mills on the banks of the Hooghly. A large number of labourers cross

annually from Midnapore to Diamond Harbour, and are employed as harvesters or in repairing embankments and clearing jungle in the Sundarbans. A number of immigrants from Chotā Nāgpur have also settled in the Sundarbans, where they are known as Bunās. No less than 10 per cent. of the population enumerated in 1901 were born outside the District, and there were more than two males for every female immigrant. As a consequence, there are only 902 females to every 1,000 males of the population. Bengali is the language spoken by the natives of the District. Hindus number 1,310,151 or 63 per cent. of the total, and Musalmāns 753,260 or 36 per cent.; the latter are most numerous in the north-east, where they actually outnumber the Hindus. Christians (14,000) are more numerous than in any other Bengal District except Rānchī, and Europeans (3,000) more numerous than in any other District.

Castes and occupations. The castes most largely represented are aboriginal. The Pods (295,000) are numerically the most important and are divided into two classes, the Padma Rāj, or Vrātya Kshattriya, living by cultivation and regarding themselves as superior to the fishing Pods. Similar in rank and origin are the Kaibarttas (207,000), who again claim to be divided into a higher class known as the Chāsi or Māhisya, and a lower, the Jaliyā. The Bāgdis (94,000) are another non-Aryan community. Among the Aryan castes, Brāhmans (77,000), Ahīrs (64,000), and Kāyasths (34,000) are the most numerous. Of the remainder, Tiyars (fishermen), Nāpits (barbers), Muchis (leather-dressers), and Sadgops, a cultivating caste, are well represented. The Kaorās (63,000) are a low caste, of criminal proclivities, who largely man the ranks of the village watch. Nearly all the Musalmāns are Shaikhs (574,000) or *ajlāf* (122,000). These, with the functional castes, e.g. Jolāhās (18,000), are probably descendants of converts, as distinguished from the immigrant Pathāns (14,000) and Saiyids (8,000). Out of every 100 persons, 62 are dependent on agriculture, 18 on industry, and 1 on commerce, while 2 belong to the professional classes.

Christian missions. Of the 14,000 Christians, 11,000 are natives of India; of these, 4,000 belong to the Anglican communion, 2,800 are Roman Catholics, and the remainder are Baptists, Congregationalists, or Methodists. Missionary effort dates from the beginning of the nineteenth century, and has met with most success among the aboriginal castes in the south of the District. A large number of sects and denominations are at

work. They have several masonry churches, and their educational work is especially important. The Church of England is represented by the Society for the Propagation of the Gospel and the Church Missionary Society. The former commenced work in 1823. Both are engaged in pastoral and educational work; and, under the auspices of the former Society, the Clewer Sisters maintain 30 girls' schools in the Sundarbans. The London Missionary Society maintains two high schools at Bhawānīpur, and a first-grade college as well as elementary schools. The Baptist Missionary Society, the Wesleyan Mission, the American Methodist Church, the Women's Union Missionary Society, and the Church of Scotland also carry on important work. The Roman Catholic Church conducts missionary and educational work in the Sundarbans.

General agricultural conditions and principal crops.

The surface of the District has been formed by recent alluvial deposits; and, with the exception of strips of high land along the banks of the rivers, the whole country is low and swampy, and tends to become waterlogged whenever the rainfall is in excess. This is especially the case with the great basin shut in between the Diamond Harbour Railway and the Hooghly embankments, as well as the similar tract east of the Eastern Bengal State Railway and the Ballī *bīl*. In these cases the drainage channels are inadequate to remove any excessive rainfall.

The main agricultural statistics for 1903-4 are shown below, areas being in square miles:—

Subdivision.	Total.	Cultivated.	Cultivable waste.	Forests.
Alipore	1,164	634	167	317
Suburbs of Calcutta	10	5	2	...
Barrackpore	190	132	27	...
Bārāsat	275	193	39	...
Basīrhāt	1,922	336	275	1,140
Diamond Harbour	1,283	363	184	301
Total	4,844	1,663	694	1,758

The only crops of real importance are rice and jute, the former occupying 1,517 and the latter 125 square miles. The winter rice crop, which accounts for nearly four-fifths of the total cultivated area, is usually transplanted. Pulses are largely grown in the winter, and sugar-cane occupies a considerable area in the north-east.

Improvements in

Cultivation is spreading very rapidly in the Sundarbans, and all over the District the swamps are being gradually drained

agricultural practice. and reclaimed. Under the Land Improvement Loans Act money is occasionally borrowed for the construction of embankments in the Sundarbans; and, after the floods of 1900, about Rs. 21,000 was lent to the sufferers to enable them to purchase cattle and seed-grain.

Cattle. The cattle belong to the degenerate breeds common in Lower Bengal. They are deteriorating, owing to the cultivation of former pasture lands and to the abandonment of the practice of dedicating bulls, which are no longer allowed to breed unmolested, but are sold in the towns for cart-work. Diminutive goats are numerous, but ponies, sheep, and buffaloes are scarce. Important fairs are held at SĀGAR ISLAND in January, and at HĀRUA at the end of February. In November the Mārwāris hold a gathering at the Pinjrāpol, 15 miles north of Calcutta, where they maintain an asylum for broken-down cattle. A veterinary college has been established at Belgāchia.

Irrigation. Water from tanks and roadside ditches is employed to a trivial extent in irrigating sugar-cane and garden crops; but as cultivation suffers far more frequently from too much than from too little water, artificial irrigation is but little used.

Forests. A tract on the southern face of the Sundarbans forms a 'protected' forest; but cultivation is rapidly encroaching upon it, and no less than 448 square miles were disforested during the decade ending 1903-4, leaving 1,758 square miles as the present area. The principal timber trees are *garān* (*Ceriops Candolliana*), *geoā* (*Excoecaria Agallocha*), and *keorā* (*Sonneratia apetala*), while among minor forest produce may be reckoned *golpāta* (*Nipa fruticans*), *hantāl* (*Phoenix paludosa*), reeds, honey, wax, and shells used for making lime. The forest receipts in 1903-4 amounted to Rs. 50,000, and the expenditure was Rs. 18,000. The receipts on account of the produce of leased lands amounted to Rs. 23,000.

Arts and manufactures. No hand industries of any importance are carried on. Imitation locks are made at Nātāgarh, and brushes and combs, cheap shoes, and common embroidery are manufactured. A little cotton is woven, and knives, utensils, and mats are made. Small sugar factories exist in the north of the District, but the industry is declining. Tanneries and soap manufacture exhaust the list of hand industries.

Factory industries are important, as the proximity of the Port of Calcutta and the many means of communication with the interior, by both rail and river, afford special facilities to manufacture on the banks of the Hooghly. In 1903 as many

as 75 out of the 259 factories in Bengal were situated in the Twenty-four Parganas, and at the end of 1904 there were 79 factories at work, employing 124,000 hands. The list of industries is a long one, as it includes jute-pressing and weaving, cotton-spinning, paper-making, sugar-refining, ship-building; the manufacture by Government of arms and ammunition, of uniforms for the troops, and of telegraph stores; soap-making, iron-founding, leather-tanning, rope-spinning, shellac manufacture, bone-grinding, oil-pressing, brick-making, and the refinement of saltpetre. Petroleum is also stored in bulk and subsequently filled in tins at Budge-Budge.

The operatives are largely up-country men, and they are for the most part miserably housed in crowded hovels; but factory owners have done much of late years to ameliorate the conditions of their life by improving the water-supply and by constructing wholesome dwellings for them.

By far the most important industries are the weaving of jute into gunny-bags and the pressing of the raw product for export. The manufacture of gunnies has been largely diverted of late years from Dundee to the banks of the Hooghly, and nearly one-third of the jute crop is now manufactured in Bengal. The first start was made about forty years ago, but most of the mills have been opened since 1880. In 1904 the District contained 24 jute-mills, employing 84,000 hands; they possessed nearly 12,000 looms, and their out-turn was valued at nearly 6 crores of rupees, or 4 millions sterling. The jute-presses are found in the northern suburbs. The industry started in 1873, and in 1904 as many as 11 presses were at work, employing over 8,000 hands. There are 5 cotton-mills, which manufacture cotton yarn or twist for the local and China markets. The industry dates from 1875 and employs 5,000 operatives; the out-turn in 1901 was 5,700 tons of yarn, valued at nearly 33 lakhs.

Two paper-mills, employing 2,000 hands, had in 1903-4 an out-turn of 8,778 tons, valued at nearly 27 lakhs; and there are also 2 lac factories with 500 operatives. The remaining industries are of minor importance; they include a soap factory, 4 iron-works, 2 ice factories, 2 oil-mills, 1 silk factory, 1 rice-mill; 1 sugar factory, and 4 saltpetre refineries. Besides these, the Government maintains a small-arms and ammunition factory at Dum-Dum, a foundry and shell factory at Cossipore, and a rifle factory at Ichāpur.

The only articles imported by rail in any quantity are coal from Rānīganj and Mānbhūm District, jute from East and Commerce.

North Bengal, and linseed from Calcutta and Bihār; the coal and jute go to the mills. Raw cotton is obtained by the mills from Berār and the Central Provinces, rice from Backergunge, Burdwān, and Khulnā, and paddy (unhusked rice) from Bīrbhūm and Bogra. Some gram and pulses are imported from Nadiā and Jessore, and a little sugar comes from the latter District. Imported kerosene oil is sent up-country from Budge-Budge, a certain amount of rice is exported to Calcutta, and gunny-bags manufactured in the mills are dispatched to Calcutta and up-country. The water communications are excellent and carry an extensive trade in country produce. A considerable export takes place by road into Calcutta of animals, vegetables, &c., as well as of straw, bricks, bamboos, and other local products and manufactures.

Railways. The Eastern Bengal State Railway runs from Calcutta to the northern boundary of the District, and the central section of that railway follows a north-easterly course through Bārāsat and Hābra towards Jessore. Other lines run from Calcutta to Budge-Budge, Diamond Harbour, and Port Canning; and a light railway from Basīrhāt to Bārāsat has recently been opened. The total length of railways in the Twenty-four Parganas is about 158 miles.

Roads. Including 993 miles of village roads, the District contains 241 miles of metalled and 1,344 miles of unmetalled roads maintained by the District board. The grand trunk road runs north from Calcutta along the river bank to Paltā (14 miles), where the Hooghly is crossed by a ferry and the road passes to the west bank of the river. The Plassey road continues north along the east bank to the boundary of the District. The Jessore road passes through Dum-Dum and Bārāsat, and maintains a north-easterly direction to the District boundary. The roads south of Calcutta are the Diamond Harbour road, the Orissa trunk road which crosses the Hooghly by a ferry at Achipur, and the Bistupur road which runs due south, through Bāruipur, for 29 miles. The chief east and west cross-roads are the Tāki road from Bārāsat to Basīrhāt, along which a light railway with eight stations has been laid, and the continuation of this road westwards to Barrackpore.

Electric tramways. The Calcutta Electric Tramways extend in the Twenty-four Parganas District for half a mile along the Jessore road to Belgāchia, and for the same distance southwards to Tollygunge.

Water communications. The CALCUTTA AND EASTERN CANALS, which form the waterway by which the rice of Eastern Bengal is poured into

Calcutta, have their terminus at Dhāpa, 5 miles east of Fort William. The inception of the system is due to Major Tolly, who in 1777 canalized an old bed of the Ganges, called after him TOLLY'S NULLAH, which connects Kidderpore with the Bidyādharī river. There are now three great routes between Calcutta and the chief rice-growing Districts. The one generally used is the Inner Sundarbans Passage, which, starting from Dhāpa, follows the Beliāghāta and Bhāngar canals, and thence passes by the Sibsā river to Khulnā. The Outer Sundarbans Passage, which is used by heavily laden boats, runs from Sāmukpotā, 20 miles south-east of Calcutta, along the Bidyādharī river to Port Canning and then strikes to the north-east; it is connected with the south of Calcutta by Tolly's Nullah, and with the north of that city by the Beliāghāta and Circular Canals. The third route is the steamer route to Goalundo and Chāndpur, which proceeds down the Hooghly to Mud Point, and thence turns eastwards by the Bārātala Creek between Sāgar Island and the mainland, and works its way through various creeks and channels to Barisāl. Passenger steamers ply on the Hooghly from Calcutta to Naihāti, from Calcutta to Kākdwīp on the mainland opposite Sāgar Island, and from Diamond Harbour to Tengrā. Steamers also traverse the Ichāmatī and Jamunā rivers from Tāki to Chārghāt, 4 miles from Gobardānga. Much of the traffic is carried on by large boats from the eastern Districts. The local boat is called *pānsi*, but on the narrow and shallow waterways most of the work is done with dug-outs known as *dongās* or *sāltis*.

There are 53 ferries under the control of the District board, the most important being the Uttarbhāg ferry across the Piāli river, the Hājīpur ferry across the creek at Diamond Harbour, and the Budge-Budge and Charāmādāri ferries across the Hooghly. Other ferries on the Hooghly river belong either to the Government or to riparian municipalities.

District subdivisions and staff.

For administrative purposes the District is divided into five subdivisions, with head-quarters at ALIPORE, BARRACKPORE, BĀRĀSAT, BASĪRHĀT, and DIAMOND HARBOUR. At Alipore are stationed the Magistrate-Collector, a Joint-Magistrate, an Assistant Magistrate, and nine Deputy-Magistrate-Collectors. The suburbs of Calcutta are policed by the Calcutta force, but cases are tried at police courts at Alipore and Sealdah by two Deputy-Magistrates subordinate to the District Magistrate of the Twenty-four Parganas. The Barrackpore subdivision is in charge of a member of the covenanted civil service, and each of the other subdivisions of a Deputy-Magistrate-Collector, the subdivisional

officer at Basīrhāt being assisted by one Sub-Deputy-Collector and at Diamond Harbour by two Sub-Deputy-Collectors. The Collector of the Twenty-four Parganas is *ex-officio* Collector of land revenue in Calcutta, but the revenue is collected by an officer styled the Deputy-Collector of land revenue, who is also the Collector of stamp revenue and Superintendent of excise revenue in Calcutta and in so much of the District as is under the jurisdiction of the Calcutta police; in these functions he is independent of the Collector of the Twenty-four Parganas. An Assistant Inspector-General of Government railway police is stationed at Sealdah.

Civil and criminal justice.

The civil courts are those of the District and Sessions Judge, 2 Additional District and Sessions Judges, of whom one is also Additional Judge of Hooghly and the other is a special land-acquisition judge, 4 Sub-Judges at Alipore, of whom 2 are permanent and 2 are temporary, a Small Cause Court Judge at Sealdah, and 15 Munsifs, of whom 3 are stationed at Alipore, 4 at Diamond Harbour, and 2 each at Sealdah, Bārāsat, Basīrhāt, and Bāruipur. For criminal work, in addition to the courts of the Judge, Additional Judge, the District Magistrate, and the stipendiary magistrates, a Cantonment Magistrate deals with cases in the Barrackpore and Dum-Dum cantonments and the Station Staff Officer with those in Alipore. The large number of dacoities is a feature of the criminal administration of the District, while the Diamond Harbour subdivision is notorious for the number of wreckers and cattle-thieves it contains.

Land revenue.

The current demand for land revenue in 1903–4 was 16·88 lakhs, payable by 2,012 estates, of which 1,696 with a demand of 12·64 lakhs are permanently settled, and 302 paying Rs. 1,07,000 are temporarily settled, the remainder being held direct by Government. The District contains a large area managed direct by Government, and the whole of the Sundarbans is so dealt with. The most interesting estate is PANCHĀNNAGRĀM, which comprises most of the suburbs of Calcutta. It is bounded on the north by the Baranagar estate, which was acquired by treaty from the Dutch in 1795. The Sāhibān Bāgīcha is a Government estate formed in 1790 of garden houses occupied by Europeans.

Rents are high. Rice lands in the head-quarters and Bārāsat subdivisions are rented at from Rs. 6 to Rs. 12 an acre, but lower rates prevail in the other two subdivisions. Homestead and sugar-cane lands fetch from Rs. 10 to Rs. 20 an acre. The gross rental of the District, as ascertained from the road and public works cess valuation rolls, is 72·51 lakhs, or more than

four times the land revenue. The cultivated area in 1903–4 was estimated at 1,663 square miles, and the incidence of the gross valuation per acre is therefore Rs. 6–13, of which only Rs. 1–9 reaches the treasury. These figures are much above those for Bengal as a whole, where the average rental is only Rs. 3–1 and the revenue only 13 annas per cultivated acre. In the Government estates in Diamond Harbour the average size of a holding varies from 2½ to 8 acres. The general average for the District is probably from 3 to 4 acres, but in the Sundarbans holdings are considerably larger.

The following table shows the collections of land revenue and of total revenue (principal heads only), in thousands of rupees:—

	1880–1.*	1890–1.	1900–1.	1903–4.
Land revenue . .	16,92	16,02	16,13	16,61
Total revenue . .	27,89	29,89	32,60	36,24

* In 1880–1 the District included the Sātkhira subdivision, which was subsequently transferred to Khulnā.

Local and municipal government.

The District contains 26 municipalities, and their inspection and control occupy much of the District officer's time and energies. Outside municipal areas, local affairs are managed by a District board, with subdivisional local boards and three village unions at Bāsudebpur, Itindā, and Jadurhātī. The income of the District board in 1903–4 was Rs. 2,89,000, including Rs. 1,59,000 derived from rates; and the expenditure was Rs. 2,92,000, of which Rs. 1,78,000 was spent on public works and Rs. 60,000 on education. The District board has guaranteed interest at the rate of 4 per cent., up to a maximum of Rs. 38,000 per annum, on the light railway from Bārāsat to Basīrhāt.

Public works.

The Public Works department maintains 222 miles of embankments, of which 216 miles were constructed, and are kept in repair, at Government expense. The main embankment has a total length of 194 miles, and runs southwards along the left bank of the Hooghly river from Akra, a few miles below Calcutta, to Rāngāfala near the head of Sāgar Island; thence it branches east and north to Sāmukpotā, and terminates at Gariyā, 8 miles south of Calcutta. This embankment protects a tract of 716 square miles in the south-west of the District from inundation by the Hooghly and other rivers. Drainage is provided for by numerous sluices, of which 13 are on a large scale. The Chariāl works drain a large area near Budge-Budge,

and the Sātpukur, Kālpi, and Tengrābichi works drain a considerable tract in the south of the Diamond Harbour subdivision, while the Ballī *bīl* in the north-east of the District is drained by a channel with a sluice at Tetuliā. Large schemes have also been projected for draining the area protected by the embankments. A lighthouse is situated on Sāgar Island.

Police and jails. The suburbs of Calcutta are policed by a force under the orders of the Commissioner of Police, Calcutta. His jurisdiction embraces the Cossipore-Chitpur, Māniktala, and part of the Garden Reach municipal areas, as well as the fringe east and south of the Lower Circular Road and Tolly's Nullah, which is within the Calcutta municipality but under the authority of the Magistrate of the Twenty-four Parganas. The suburbs are divided into two divisions, the northern and southern, each under a Superintendent. The suburban force consisted in 1903, in addition to the Superintendents, of 68 officers, 633 constables, and 7 boatmen.

Outside the suburbs, the District contains 26 police stations and 9 outposts, as well as 37 town outposts, 3 mill outposts, 3 cantonment outposts, and one beat-house. The town outposts are manned partly by police constables, and partly by town *chaukīdārs*. The District Superintendent is provided with a steam-launch, and 7 police boats patrol the waterways. The force consists of a District Superintendent, an Assistant Superintendent, 8 inspectors, 71 sub-inspectors (including one European), 127 head constables, 1,019 constables, and 148 town *chaukīdārs*. A special force of 15 head constables is employed for nine months in the dry season, to accompany the officers of the Salt department on searches. The rural police number 350 *daffadārs* and 3,423 *chaukīdārs*; and the District is divided into 349 unions, each of which is manned by a *daffadār* and from 7 to 13 *chaukīdārs*.

The Alipore District and Central jail has accommodation for 1,837 prisoners, and a District jail at Bārāsat for 130 prisoners; subsidiary jails at Diamond Harbour and Basīrhāt each hold 12 prisoners, while that at Barrackpore holds 14. A reformatory school at Alipore provides accommodation for 226 boys.

Education. Education is more advanced than in most Bengal Districts. In 1901, 11·2 per cent. of the population (20·2 males and 1·3 females) could read and write. The number of pupils under instruction increased from 52,000 in 1883–4 to 68,138 in 1892–3 and 73,021 in 1900–1. In 1903–4, 79,860 boys and 7,727 girls were at school, being respectively 42·5 and 5·2 per

cent. of the children of school-going age. The number of educational institutions, public and private, in that year was 1,953: namely, 125 secondary, 1,788 primary, and 40 special schools. The expenditure on education was 3·86 lakhs, of which Rs. 52,000 was met from Provincial revenues, Rs. 60,000 from District funds, Rs. 11,000 from municipal funds, and 1·97 lakhs from fees.

In 1903 the District contained 36 dispensaries, of which 12 had accommodation for 195 in-patients. The cases of 184,000 out-patients and 3,404 in-patients were treated during the year, and 12,017 operations were performed. The expenditure was Rs. 71,000, of which Rs. 12,000 was met from Government contributions, Rs. 20,000 from Local and Rs. 22,000 from municipal funds, and Rs. 7,000 from subscriptions. Medical.

Vaccination is compulsory only within municipal areas. In 1903-4 the number of persons successfully vaccinated was 62,000, representing 30 per 1,000 of the population. Vaccination.

[Sir W. W. Hunter, *Statistical Account of Bengal*, vol. i (1875).]

Alipore Subdivision.—Head-quarters subdivision of the District of the Twenty-four Parganas, Bengal, lying between 22° 8′ and 22° 38′ N. and 88° 7′ and 88° 39′ E., with an area of 1,164 square miles, of which 450 are included in the SUNDARBANS. The subdivision is a deltaic tract containing numerous marshes, and in the south there is a network of sluggish channels and backwaters. The population in 1901 was 671,269, compared with 600,274 in 1891, the density being 577 persons per square mile. These figures do not include the suburbs of Calcutta. *See* CALCUTTA, SUBURBS OF. The subdivision contains six towns, SOUTH SUBURBS (population, 26,374), TOLLYGUNGE (12,821), RĀJPUR (10,713), BĀRUIPUR (4,217), JAYNAGAR (8,810), and BUDGE-BUDGE (13,051); and 1,683 villages. The head-quarters are at ALIPORE, within the Calcutta municipality.

Calcutta, Suburbs of.—A name given to the three suburban municipalities of COSSIPORE-CHITPUR (population, 40,750), MĀNIKTALA (32,387), and GARDEN REACH (28,211), which are thus grouped as a subdivision of the District of the Twenty-four Parganas, Bengal. The area of the subdivision is 10 square miles, and the population in 1901 was 101,348, compared with 87,508 in 1891, the density being 10,135 persons per square mile. Cossipore-Chitpur is north and Māniktala north-east of Calcutta, while Garden Reach bounds the city on the south-west.

Barrackpore Subdivision.—North-western subdivision of the District of the Twenty-four Parganas, Bengal, lying between 22° 35′ and 22° 57′ N. and 88° 21′ and 88° 31′ E., on the left bank of the Hooghly, with an area of 190 square miles. The subdivision, which was formed in 1904 from portions of the Sadar and Bārāsat subdivisions, consists of a long narrow strip of riparian land and contains a number of low-lying swamps, but the parts along the bank of the Hooghly are higher and healthier. The population in 1901 was 206,311, the density being 1,086 persons per square mile. The bank of the Hooghly north of Calcutta is lined with mills, which provide labour for a large industrial population. The subdivision contains twelve towns, all lying within this tract: NAIHĀTI (population, 13,604), HĀLISAHAR (10,149), BHĀTPĀRA (21,540), GĀRULIA (7,375) BARRACKPORE North (12,600) and South (19,307), TITĀGARH (16,065), PĀNĪHĀTI (11,178), KĀMĀRHĀTI (13,216), BARANAGAR (25,432), and DUM-DUM North (9,916) and South (10,904). The remainder of the inhabitants live in 163 villages. The head-quarters of the subdivision are at Barrackpore, historically important as the scene of the outbreak of two mutinies. Cantonments are situated within the North Dum-Dum and South Barrackpore municipalities, and there is a Government ammunition factory at Dum-Dum. Barrackpore also contains the suburban residence of the Viceroy.

Bārāsat Subdivision.—Subdivision of the District of the Twenty-four Parganas, Bengal, lying between 22° 33′ and 22° 56′ N. and 88° 25′ and 88° 47′ E., with an area of 275 square miles. The subdivision consists of a waterlogged deltaic tract, which is very malarious, as many of the drainage channels are blocked, and there are numerous swamps and thick jungle. The population in 1901 was 264,300, the density being 961 persons per square mile. It contains two towns, BĀRĀSAT (population, 8,634), the head-quarters, and GOBARDĀNGA (5,865); and 724 villages. Bārāsat was formerly a separate magisterial District in charge of a Joint-Magistrate. In 1861 the Joint-Magistracy was abolished, and Bārāsat became one of the subdivisions of the Twenty-four Parganas.

Basīrhāt Subdivision.—North-eastern subdivision of the District of the Twenty-four Parganas, Bengal, lying between 21° 31′ and 22° 55′ N. and 88° 33′ and 89° 6′ E., with an area of 1,922 square miles, of which 1,584 are included in the SUNDARBANS. The northern part of the subdivision consists

of a fertile alluvial tract; but to the south, where the delta is in a less advanced stage of growth, there is a network of tidal creeks winding through numerous islands and morasses. The population in 1901 was 372,187, compared with 347,138 in 1891, the density being only 194 persons per square mile. It contains three towns, BASĪRHĀT (population, 17,001), the head-quarters, BĀDURIĀ (12,921), and TĀKI (5,089); and 920 villages.

Diamond Harbour Subdivision.—South-western subdivision of the District of the Twenty-four Parganas, Bengal, lying between 21° 31′ and 22° 21′ N. and 88° 2′ and 88° 31′ E., with an area of 1,283 square miles, of which 907 are included in the SUNDARBANS. The southern part of the subdivision exhibits all the typical features of half-formed land through which the estuaries of the Ganges find their way to the sea. In the northern area the tracts along the bank of the Hooghly are salubrious, owing to better drainage, the comparative absence of noxious undergrowth, and the sea-breeze, which blows almost continuously during the south-west monsoon. Farther east, the country is badly waterlogged, by reason of defective drainage. The population in 1901 was 460,748, compared with 402,880 in 1891, the density being 359 persons per square mile. It contains 1,575 villages, one of which, DIAMOND HARBOUR, is the head-quarters; but no town.

Sundarbans.—A vast tract of forest and swamp, extending for about 170 miles along the sea face of the Bay of Bengal from the estuary of the Hooghly to that of the Meghnā, and running inland to a distance of from 60 to 80 miles. The most probable meaning of the name is the 'forest of *sundri*' (*Heritiera littoralis*), this being the characteristic tree found here. The tract lies between 21° 31′ and 22° 38′ N. and 88° 5′ and 90° 28′ E., with an area of 6,526 square miles, of which 2,941 are included in the District of the TWENTY-FOUR PARGANAS, 2,688 in KHULNĀ, and 897 in BACKERGUNGE.

Boundaries and physical aspects.

The Sundarbans forms the lower part of the Ganges delta, and is intersected from north to south by the estuaries of that river, the most important, proceeding from west to east, being the HOOGHLY, Mātla, Raimangal, Mālanchā, HARINGHĀTA, Rabnābād, and MEGHNĀ. The tract through which they flow is one vast alluvial plain, where the process of land-making has not yet ceased and where morasses and swamps, now gradually filling up, abound. The rivers are connected with each other by an intricate series of branches, and the latter in their turn by innumerable smaller channels; so that the whole tract is a

tangled network of streams, rivers, and watercourses, enclosing a large number of islands of various shapes and sizes. Cultivation is confined to a fringe of reclaimed land situated along the northern boundary, except in Backergunge, where some of the clearings extend almost down to the sea.

Botany. The flat swampy islands are covered with dense forest, the most plentiful and important species being the *sundri*, which thrives most where the water in the channels is least brackish. Towards the north the forests contain a rather dense undergrowth, but elsewhere this is very scanty. In the north some mangroves, chiefly *Kandelia* and *Bruguiera*, are found scattered along the river banks; farther south, as the influence of the tide increases, they become more numerous, *Ceriops* and *Rhizophora* now appearing with the others, till at length the riparian vegetation is altogether mangrove. By this time too, *sundri* and its associates largely disappear from the interior forests, which are now mainly composed of *geoā* (*Excoecaria Agallocha*). Nearer the sea this in turn gives way to mangroves. This pure mangrove forest sometimes extends into the tide; but at other times it is separated from the waves along the sea face by a line of low sand-dunes, on which reappear some of the swamp forest species, accompanied by a few plants characteristic of other Asiatic shores, such as *Erythrina indica*, *Thespesia populnea*, *Ficus Rumphii*, and others for which the conditions in the swampy islands of the interior seem to be unsuited.

Fauna. The wild animals include tigers, which cause much destruction, rhinoceros (now nearly extinct), buffalo, hog, spotted deer (*Cervus axis*), barking-deer (*Cervulus muntjac*), and hog deer (*Cervus porcinus*). The rivers are infested with crocodiles, which are dangerous to man and beast; and the cobra, python, and many other varieties of snakes are found. In the cold season, geese, ducks, and other birds congregate in large numbers on the sandbanks.

Rainfall and cyclones. The average annual rainfall varies from about 82 inches in the west to over 200 inches in the east. Cyclones and storm-waves occur from time to time. The worst of the recent calamities of this nature was in 1870, when a great part of Backergunge and the adjoining Districts was submerged, the depth of water in some places being over 10 feet. An account of this catastrophe is given in the article on BACKERGUNGE DISTRICT.

History. Nothing is known of the Sundarbans until about the middle of the fifteenth century, when a Muhammadan adventurer, named Khān Jahān, or Khānja Alī, obtained a *jāgīr* from the

king of Gaur, and made extensive clearances near Bāgherhāt in Khulnā; he appears to have exercised all the rights of sovereignty until his death in 1459. A hundred years later, when Daud, the last king of Bengal, rebelled against the emperor of Delhi, one of his Hindu counsellors obtained a Rāj in the Sundarbans, the capital of which, IswARĪPUR, near the Kālīganj police station in Khulnā, was called Yasohara and has given its name to the modern District of Jessore. His son, Pratāpāditya, was one of the twelve chiefs or Bhuiyās who held the south and east of Bengal, nominally as vassals of the emperor, but who were practically independent and frequently at war with each other. He rebelled but, after some minor successes, was defeated and taken prisoner by Rājā Mān Singh, the leader of Akbar's armies in Bengal from 1589 to 1606.

It is believed that at one time the Sundarbans was far more extensively inhabited and cultivated than at present; and possibly this may have been due to the fact that the shifting of the main stream of the Ganges from the Bhāgīrathi to the Padmā, by diminishing the supply of fresh water from the north, rendered the tract less fit for human habitation. Another cause of the depopulation of this tract may be found in the predatory incursions of Magh pirates and Portuguese buccaneers in the early part of the eighteenth century. It is said that in 1737 the people then inhabiting the Sundarbans deserted it in consequence of the devastated state of the country, and in Rennell's map of Lower Bengal (1772) the Backergunge Sundarbans is shown as 'depopulated by the Maghs.' The most important remains are the tomb of Khān Jahān and the ruins of Shāt Gumbaz and Iswarīpur in the Bāgherhāt subdivision of Khulnā District, the temple of Jhatar Dad in the Twenty-four Parganas, and the Navaratna temple near Kālīganj police station in Khulnā.

The people.

The majority of the present inhabitants have come from the Districts immediately to the north of the Sundarbans, and consist chiefly of low-caste Hindus and Muhammadans, the Pods being the most numerous Hindu caste in the west and the Namasūdras or Chandāls towards the east. The Muhammadans, who are numerous in the east, belong mostly to the fanatical sect of Farāzis. In the Backergunge Sundarbans there are some 7,000 Maghs, who came originally from the Arakan coast. Between the months of October and May crowds of wood-cutters from Backergunge, Khulnā, Farīdpur, Calcutta, and elsewhere come in boats and enter the forests for the purpose of cutting jungle. The coolies whom they employ

to do jungle-clearing, earthwork, &c., come from Hazāribāgh, Bīrbhūm, Mānbhūm, Bānkurā, and Orissa. There are no villages or towns, and the cultivators live scattered in little hamlets. PORT CANNING was at one time a municipality, but is now nearly deserted; MORRELGANJ in Khulnā District is an important trading centre.

Agriculture. The reclaimed tract to the north is entirely devoted to rice cultivation, and winter rice of a fine quality is grown there; sugar-cane and areca-palms are also cultivated in the tracts lying in Khulnā and Backergunge Districts. When land is cleared, a *bāndh* or dike is erected round it to keep out the salt water, and after two years the land becomes fit for cultivation; in normal years excellent crops are obtained, the out-turn being usually about 20 maunds of rice per acre.

Forests. The Sundarbans contains 2,081 square miles of 'reserved' forests in Khulnā District, and 1,758 square miles of 'protected' forests in the Twenty-four Parganas. These are under the charge of a Deputy-Conservator of Forests, aided by two assistants, whose head-quarters are at Khulnā. The characteristics of the forests have been described above. They yield an immense quantity of timber, firewood, and thatching materials, the minor produce consisting of *golpāta* (*Nipa fruticans*), *hantāl* (*Phoenix paludosa*), *nal*, honey, wax, and shells, which are burned for lime. The 'protected' forests in the Twenty-four Parganas are gradually being thrown open for cultivation, and 466 square miles were disforested between the years 1895 and 1903. The gross receipts from the Sundarbans forests in 1903-4 were 3·83 lakhs, and the net revenue 2·71 lakhs.

At KĀLĪGANJ, in Khulnā District, country knives, buffalo-horn combs, and black clay pottery are made.

Rice, betel-nuts, and timber are exported to Calcutta.

Communications. Port Canning on the Mātla river is connected with Calcutta by rail; but, apart from this, the only means of communication are afforded by the maze of tidal creeks and cross-channels by which the Sundarbans is traversed. These have been connected with one another and with Calcutta by a system of artificial canals (described under the CALCUTTA AND EASTERN CANALS), which enable Calcutta to tap the trade of the Ganges and Brahmaputra valleys. Regular lines of steamers for passengers and cargo use this route, while the smaller waterways give country boats of all sizes access to almost every part of the tract. Fraserganj at the mouth of the Hooghly river has recently been selected as the site of a permanent wireless

telegraphy station, the object of which is to establish communication with vessels in the Bay of Bengal.

Administration.

The tracts comprised in the Sundarbans form an integral part of the Districts in which they are included. The revenue work (except its collection) was formerly in the hands of a special officer called the Commissioner in the Sundarbans, who exercised concurrent jurisdiction with the District Collectors; but this appointment has recently been abolished, and the entire revenue administration has been transferred to the Collectors concerned.

Land revenue.

The earliest known attempt to bring the Sundarbans under cultivation was that of Khān Jahān. More recent attempts date from 1782, when Mr. Henckell, the first English Judge and Magistrate of Jessore, inaugurated the system of reclamation between Calcutta and the eastern Districts. Henckellganj, named after its founder by his native agent, appears as Hingulganj on the survey maps. This area was then a dense forest, and Mr. Henckell's first step was to clear the jungle; that done, the lands immediately around the clearances were gradually brought under cultivation. In 1784, when some little experience had been gained, Mr. Henckell submitted a scheme for the reclamation of the Sundarbans, which met with the approval of the Board of Revenue. Two objects were aimed at: to gain a revenue from lands then utterly unproductive, and to obtain a reserve of rice against seasons of drought, the crops in the Sundarbans being very little dependent upon rainfall. The principal measure adopted was to make grants of jungle land on favourable terms to people undertaking to cultivate them. In 1787 Mr. Henckell was appointed Superintendent of the operations for encouraging the reclamation of the Sundarbans, and already at that time 7,000 acres were under cultivation. In the following year, however, disputes arose with the *zamīndārs* who possessed lands adjoining the Sundarbans grants; and as the *zamīndārs* not only claimed a right to lands cultivated by the holders of these grants, but enforced their claims, the number of settlers began to fall off rapidly. Mr. Henckell expressed a conviction that, if the boundaries of the lands held by the neighbouring *zamīndārs* were settled, the number of grants would at once increase; but the Board of Revenue had grown lukewarm about the whole scheme, and in 1790 it was practically abandoned. Several of the old grants forthwith relapsed into jungle.

In 1807, however, applications for grants began to come in

again; and in 1816 the post of Commissioner in the Sundarbans was created by Regulation IX of that year, in order to provide an agency for ascertaining how far neighbouring landholders had encroached beyond their permanently-settled estates, and for resuming and settling such encroachments. From that time steady progress was made until, in 1872, the total area under cultivation was estimated at 1,087 square miles, of which two-thirds had been reclaimed between 1830 and 1872. The damage done by the disastrous cyclone of 1870 led to the abandonment of many of the more exposed holdings, and in 1882 the total reclaimed area was returned at only 786 square miles. Since then rapid progress has again been made, and in 1904 the total settled area had risen to 2,015 square miles.

Settlements of waste lands have, until recently, been formed under the rules promulgated in 1879, the grants made being of two classes: namely, blocks of 200 acres or more leased for forty years to large capitalists who are prepared to spend time and money in developing them; and plots not exceeding 200 acres leased to small capitalists for clearance by cultivators. Under these rules one-fourth of the entire area leased was for ever exempted from assessment, while the remaining three-fourths was held free of assessment for ten years. On the expiry of the term of the original lease, the lot was open to resettlement for a period of thirty years. It was stipulated that one-eighth of the entire grant must be rendered fit for cultivation at the end of the fifth year, and this condition was enforced either by forfeiture of the grant or by the issue of a fresh lease at enhanced rates. Almost the whole of the area available for settlement in Khulnā has already been leased to capitalists; in Backergunge 479 out of 645 square miles have been settled, and in the Twenty-four Parganas 1,223 out of 2,301 square miles. Experience has shown that this system has led to the growth of an undesirable class of land speculators and middlemen, and to the grinding down of the actual cultivators by excessive rents. Land-jobbers and speculators obtained leases for the purpose of reselling them; in order to recoup his initial outlay the original lessee often sublet to smaller lessees in return for cash payments; and the same process was carried on lower down the chain, with the result that the land was eventually reclaimed and cultivated by peasant cultivators paying rack-rents. It was accordingly decided in 1904 to abandon this system and to introduce a system of *ryotwāri* settlement, as an experimental measure, in the portions of the Sundarbans

lying in the Districts of Backergunge and the Twenty-four Parganas. Under this system small areas will be let out to actual cultivators, assistance being given them by Government in the form of advances, as well as by constructing tanks and embankments and clearing the jungle for them.

[J. Westland, *Report on Jessore* (Calcutta, 1874); F. E. Pargiter, *Revenue History of the Sunderbans from* 1765 *to* 1870 (Calcutta, 1885).

Panchānnagrām.—Government estate in the District of the Twenty-four Parganas, Bengal. It comprises the suburbs of Calcutta, and is so named from the 55 villages which the estate originally comprised; these were in 1757, according to Holwell, 'taken from the Twenty-four Parganas adjoining to Calcutta in order to extend its bounds.' The area is 26 square miles, and the land revenue demand in 1903-4 was Rs. 1,07,000. A portion of the estate pays a fixed rate of Rs. 3 per *bīgha* (about one-third of an acre), and in the remainder rates fluctuate according to the position and advantages of the land. A list of the 55 villages originally included in the estate will be found on pp. 53 and 54, Part I of the *Calcutta Census Report*, 1901.

Alipore Town (*Alīpur*).—Head-quarters of the District of the Twenty-four Parganas, Bengal, situated in 22° 32′ N. and 88° 21′ E. Alipore is a southern suburb of Calcutta, and for certain administrative purposes is included within the Calcutta municipality. It contains Belvedere House, the official residence of the Lieutenant-Governor of Bengal, and is a popular quarter of residence for Europeans. Alipore is also a cantonment for native troops, the force stationed there including a native infantry regiment and a detachment of cavalry. The receipts and expenditure of the cantonment fund averaged Rs. 2,500 during the decade ending 1901; in 1903-4 the income was Rs. 2,600, and the expenditure Rs. 2,700. Orphanganj is a well-supplied market situated at Kidderpore, less than a mile away, and managed by the Collector of the Twenty-four Parganas. Alipore contains the usual public offices. A large District and Central jail has accommodation for 1,837 prisoners, who are employed on the manufacture of gunny cloth and bags, jute twine, iron and woodwork, and mustard oil, and in making up pice packets of quinine for sale in post offices. Almost all the products are sold to different Government departments, the profits earned in 1903 amounting to Rs. 58,000. There is also a reformatory, which contained 238 boys at the end of 1903;

the principal handicrafts taught are carpentry, canework, turning, painting and polishing, tinwork and smith's work, printing and type-setting, book-binding, shoe-making, tailoring, and gardening. A distillery at Russa is managed by the Collector of Excise, Calcutta. The gardens of the Agri-Horticultural Society are situated to the south of Belvedere, and the Zoological Gardens to the north.

Bāduriā.—Town in the Basīrhāt subdivision of the Twenty-four Parganas District, Bengal, situated in 22° 45′ N. and 88° 48′ E., on the right bank of the Jamunā river. Population (1901), 12,921, of whom 7,074 were Hindus and 5,847 Muhammadans. The town has a considerable trade in jute, molasses, and sugar. Bāduriā was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 5,000 and Rs. 4,800 respectively. In 1903–4 the income, which is mainly derived from a tax on persons (or property tax), and the expenditure were each Rs. 5,000.

Bānkībāzār.—Ancient village in the District of the Twenty-four Parganas, Bengal, on the Hooghly river near the modern Paltā, 3 miles above Barrackpore. The name of this village has disappeared from the map, and its site can be identified only from old charts. It formed the principal settlement in India of the ill-fated Ostend Company which was chartered by the Emperor of Austria in 1722. This settlement was regarded with great jealousy by the English, French, and Dutch; and the result was that, when the court of Vienna was anxious to obtain a European guarantee for the Pragmatic Sanction in 1727, the Company's charter was suspended. In 1733 the Muhammadan general (*faujdār*) at Hooghly, at the instigation of the Dutch and English, besieged Bānkībāzār; and the small garrison, after a despairing resistance against overwhelming numbers, abandoned the place and set sail for Europe[1].

Baranagar (*Barāhanagar*).—Town in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 39′ N. and 88° 22′ E., on the bank of the Hooghly river, 6 miles north of Calcutta. Population (1901), 25,432. Hindus numbered 19,581; Musalmāns, 5,697; and Christians, 142. Baranagar seems to have been originally a Portuguese settlement; but it afterwards became the seat of a Dutch factory, and during the greater part of the

[1] The 'Ostenders' were again expelled from Bānkībāzār in 1744 (*Bengal Public Consultations*, October 14, 1744).

eighteenth century Dutch vessels anchored here on their way up to Chinsura. Old Dutch tiles of artistic design are still found in some of the native buildings in the neighbourhood. The town was ceded by the Dutch Government to the British in 1795, and the lands are comprised in the Government estate of Baranagar, which is contiguous to the Panchānnagrām estate. The lands are rented at Rs. 3 per *bīgha* (about one-third of an acre). Baranagar was formerly a favourite pleasure resort for European residents of Calcutta; but it is now a busy industrial suburb and contains two of the largest jute-mills on the Hooghly, while large quantities of castor-oil are manufactured for export to Europe.

A municipality was constituted in 1869, which was known for many years as the North Suburban municipality. On the formation of the Cossipore-Chitpur municipality in 1889, the name was changed to Baranagar. In 1899 the municipality was divided into two portions, of which the northern became the Kāmārhāti municipality. Since the partition, the average income has been Rs. 42,000 and the expenditure Rs. 41,000. In 1903–4 the income was Rs. 43,000, including Rs. 19,000 derived from a tax on houses and lands, and Rs. 16,000 from a conservancy rate; and the expenditure was Rs. 49,000. The Victoria high school is situated within the town.

Bārāsat Town.—Head-quarters of the subdivision of the same name in the District of the Twenty-four Parganas, Bengal, situated in 22° 43′ N. and 88° 29′ E., 14 miles north-east of Calcutta. Population (1901), 8,634. The town is very unhealthy, and the inhabitants are gradually moving to Calcutta and the higher country on the bank of the Hooghly. In the early years of the nineteenth century, there was a college here for cadets on their first arrival from Europe; and, until 1861, Bārāsat was the head-quarters of a separate District. It was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 10,500 and Rs. 10,000 respectively. In 1903–4 the income was Rs. 12,400, half of which was derived from a tax on vehicles, while a tax on persons brought in Rs. 3,000; the expenditure was Rs. 12,600. The town contains the usual public offices; the jail, which has accommodation for 130 prisoners, is a three-storeyed building, popularly known as 'Vansittart Villa,' as it was formerly the country residence of Mr. Vansittart, a civil servant in the time of Warren Hastings. Kāzīpāra, a suburb of the town, is the scene of an annual fair held in honour of a Musalmān saint, named Pīr Ekdil Sāhib, which is attended

by Hindus as well as Muhammadans. A light railway has recently been constructed between the town and Basīrhāt.

Barrackpore Town.—Head-quarters of the subdivision of the same name in the District of the Twenty-four Parganas, Bengal, situated in 22° 46′ N. and 88° 21′ E., on the bank of the Hooghly river, 15 miles above Calcutta. The town is comprised within two municipalities: North and South Barrackpore, containing, in 1901, 12,600 and 19,307 inhabitants respectively. South Barrackpore includes Barrackpore cantonment, with a population in 1901 of 9,888. The name is probably derived from the fact of troops having been stationed here since 1772; the natives call the place Chānak. To the south of the cantonment is Barrackpore Park, which has been laid out with much taste; it contains the suburban residence of the Viceroy of India, built by Lord Minto and enlarged by the Marquis of Hastings. The military force stationed at Barrackpore consists of a field battery, a company of British infantry, and a Native infantry regiment.

Barrackpore has played a part in two mutinies. In 1824, when Bengal troops were required to take part in the Burmese War, the 47th Bengal Infantry, which was stationed here, was warned for foreign service. Alarmed by rumours that they were to be transported to Rangoon by sea, the regiment mutinied on parade on October 30. After ineffectual attempts at conciliation, the regiment was paraded on November 1 in presence of Sir Edward Paget, the Commander-in-Chief, who directed them either to obey the orders to march or to ground their arms. Upon their refusal, a battery of European artillery, supported by two British regiments, opened fire upon the mutineers, who broke at once and made for the river, throwing away their arms. Some were shot, some drowned, and others hanged; and the number of the regiment was removed from the Army List.

The first sparks of the Mutiny of 1857 were kindled in Barrackpore. The excitement which had been rapidly spreading among the native troops culminated on March 29, when Mangal Pānde, a sepoy of the 34th Native Infantry, attempted to kill one of the officers, Lieutenant Bough, fired at a European sergeant-major, and called upon his comrades to join him. These outrages were committed within a few yards of the quarter-guard, which took no steps to interfere. As a punishment for this mutinous behaviour, the regiment was disbanded with ignominy on May 6, Mangal Pānde and the native officer in charge of the guard having been previously tried by court-

martial and hanged. A full account of these events will be found in Sir John Kaye's *History of the Sepoy War*, vol. i, pp. 266–9, 495.

Barrackpore is an important station on the Eastern Bengal State Railway, and the head-quarters of the recently constituted Barrackpore subdivision. It contains the usual public offices, a sub-jail with accommodation for 14 prisoners, and the Bholā Nāth Bose Hospital with 18 beds. The town is a favourite residence of Europeans, and the Christian population numbers 914.

The North Barrackpore municipality was constituted in 1869. The income and expenditure during the eight years ending 1903–4 averaged Rs. 11,000. In 1903–4 the income was Rs. 13,000, including Rs. 5,000 from a tax on persons and the same amount from a conservancy rate; and the expenditure was Rs. 11,600. The municipal office is at Nawābganj, the residence of the Mandal family of *zamīndārs*. Within the municipal area is PALTĀ, where the Calcutta water-works are situated, and Ichāpur, where there is a Government rifle factory. The GĀRULIA municipality was separated from North Barrackpore in 1896.

The South Barrackpore municipality was also constituted in 1869. Its area has been curtailed of late years by the separation of the TITĀGARH municipality in 1895 and of the PĀNĪHĀTI municipality in 1900. The income during the four years ending 1903–4 averaged Rs. 10,000, and the expenditure Rs. 9,000. In 1903–4 the income was Rs. 11,000, mainly from a tax on persons (or property tax), a conservancy rate, and a tax on houses and lands; and the expenditure was Rs. 9,000. The municipal office is at KHARDAH.

The receipts and expenditure of the cantonment fund during the decade ending 1901 averaged Rs. 25,000, and in 1903–4 they were Rs. 34,000 and Rs. 33,000 respectively.

Bāruipur.—Town in the head-quarters subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 21′ N. and 88° 27′ E., on the banks of the Adi Gangā (original bed of the Ganges), 15 miles south of Calcutta. Population (1901), 4,217. The town was formerly the head-quarters of a subdivision of the same name, which was amalgamated with the Alipore subdivision in 1883. Bāruipur derives its name from the extensive cultivation of *pān* (*Piper Betle*) by the Bārui caste. The town is a mission station of the Society for the Propagation of the Gospel, and contains a large church. Bāruipur was constituted a municipality in

1869. The income during the decade ending 1901–2 averaged Rs. 4,700, and the expenditure Rs. 4,500. In 1903–4 the income was Rs. 6,900, including Rs. 3,000 derived from a tax on persons; and the expenditure was Rs. 7,200.

Basīrhāt Town.—Head-quarters of the subdivision of the same name in the District of the Twenty-four Parganas, Bengal, situated in 22° 40′ N. and 88° 51′ E., on the right bank of the Jamunā river. Population (1901), 17,001. Basīrhāt was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 6,000. In 1903–4 the income was Rs. 6,600, mainly from a tax on persons; and the expenditure was Rs. 6,300. Basīrhāt contains the usual public offices; the sub-jail has accommodation for 12 prisoners. Basīrhāt is connected with Bārāsat, a station on the Eastern Bengal State Railway, by a metalled road 26 miles in length, along which a light railway with eight stations has recently been laid.

Bhātpāra.—Town in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 52′ N. and 88° 25′ E., on the bank of the Hooghly river. Population (1901), 21,540. Bhātpāra has long been famous as a seat of Sanskrit learning, and contains several *tols* where pupils are educated and fed free of charge. It is also a busy industrial place, possessing jute-mills and a paper-mill, situated chiefly in the villages of Jagatdal and Kānkīnāra. Bhātpāra was formerly included in the Naihāti municipality, but in 1899 a separate municipality was constituted. The income during the five years since its constitution averaged Rs. 25,000, and the expenditure Rs. 17,000. In 1903–4 the income was Rs. 51,000, including a loan from Government of Rs. 20,000 and Rs. 11,000 derived from a tax on persons; and the expenditure was Rs. 31,000.

Budge-Budge (*Baj-Baj*).—Town in the head-quarters subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 29′ N. and 88° 11′ E., on the bank of the Hooghly river, 14 miles below Calcutta. Population (1901), 13,051. The remains of a fort, which was captured from the forces of Sirāj-ud-daula by Clive in 1756, are still visible. Budge-Budge is a growing place; it is the oil dépôt of Calcutta, and contains a large jute-mill and a cotton-mill. It was constituted a municipality in 1900. The income during the four years ending 1903–4 averaged Rs. 20,000, and the expenditure Rs. 14,000. In 1903–4 the income was Rs. 24,000, mainly derived from a tax on houses and lands; and the expenditure was Rs. 16,000.

Calcutta, South Suburbs.—Town in the head-quarters subdivision of the District of the Twenty-four Parganas, Bengal, comprising a portion of the southern suburbs of Calcutta. Population (1901), 26,374, of whom 20,165 were Hindus, 5,849 Musalmāns, and 356 Christians. The application of the term 'suburbs of Calcutta' has varied widely at different periods. By Act XXI of 1857 the 'suburbs' were defined as including all lands within the general limits of the PANCHĀNNAGRĀM estate; and under the Bengal Municipal Act, 1876, they were further defined as comprising the present municipalities of Cossipore-Chitpur, Māniktala, Garden Reach, South Suburbs, and Tollygunge, as well as so much of Calcutta as lay outside the limits of the 'Old Town,' which was bounded by Lower Circular Road and Tolly's Nullah. This unwieldy municipality, known as the Suburban municipality, was in 1888 split up into four parts, the 'Added Area' and 'Fringe Area Wards' (defined in the article on CALCUTTA) being added to Calcutta, and the municipalities of Cossipore-Chitpur and Māniktala being created. These deductions, however, still left the South Suburban municipality of unmanageable size; and, accordingly, in 1897 the Garden Reach municipality and in 1901 the Tollygunge municipality were separated from it. The constitution of the present 'South Suburbs' municipality therefore dates from 1901. The income during the three years following its constitution has averaged Rs. 52,000, and the expenditure Rs. 32,000. In 1903–4 the income was Rs. 79,000, including Rs. 11,000 derived from a tax on houses and lands and Rs. 29,000 obtained from the sale-proceeds of Government securities and the withdrawal of savings bank deposits. The expenditure in the same year was Rs. 52,000, of which Rs. 29,000 represented the outlay on the introduction of a supply of filtered water. The principal villages now within the municipality are Barisā and Behāla.

Canning, Port (*Mātla*).—Village in the head-quarters subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 19′ N. and 88° 39′ E., at the junction of the Bidyādharī and Mātla rivers. Population (1901), 1,049. Between 1853 and 1870 a serious attempt was made to create a port at Canning as an auxiliary to Calcutta, in consequence of the deterioration of the Hooghly river, which was then believed to be rapidly closing. Land was acquired by Government in 1853, and in 1862 a municipality was created, to which the land was transferred. In 1865 the Port Canning Company was formed to develop the port. In that

year it was visited by twenty-six ships, and for a time the company's shares rose at an unprecedented rate; but the number of ships visiting the port dropped to one vessel in 1868-9, and the failure of the scheme was then recognized. Litigation ensued, and in 1870 the company went into liquidation and was reconstructed as the 'Port Canning Land Company, Limited.' This company is under Pārsī management, the shares being held in Bombay, and is engaged in leasing reclamations in the Sundarbans. The lands held by it have been sub-leased; and the middlemen, who have again sublet them to others, reap most of the profits. Canning is now a Government estate; and the only relics of the wild speculation of the sixties are a railway which does a little traffic in timber and other produce from the Sundarbans, some ruined jetties, and the remains of a tramway line.

Cossipore-Chitpur (*Kāsīpur*).—Northern suburb of Calcutta, in the District of the Twenty-four Parganas, Bengal, situated in 22° 37′ N. and 88° 22′ E., on the bank of the Hooghly river. Population (1901), 40,740, including 29,056 Hindus, 11,346 Musalmāns, and 338 Christians. Cossipore-Chitpur is a thriving industrial suburb, containing the Government Gun Foundry and Shell Factory, and a number of jute-presses, sugar and other factories. The town is within the jurisdiction of the Calcutta police. The municipality was separated in 1889 from the South Suburban municipality. The income during the decade ending 1901-2 averaged Rs. 1,36,000, and the expenditure Rs. 1,31,000. A reserve is being accumulated to carry out a drainage scheme that is under contemplation. In 1903-4 the income was Rs. 1,58,000, including Rs. 70,000 derived from a tax on houses and lands, Rs. 25,000 from a conservancy rate, Rs. 28,000 from a water rate, Rs. 16,000 from jute warehouse fees, and Rs. 4,000 from a tax on vehicles. The incidence of taxation was Rs. 3-2-10 per head of the population. In the same year the expenditure was Rs. 1,65,000, the chief items being Rs. 13,000 spent on fire-engine establishment, Rs. 14,000 on lighting, Rs. 23,000 on water-supply, Rs. 7,000 on drainage, Rs. 54,000 on conservancy, Rs. 6,000 on medical relief, Rs. 16,000 on roads, and Rs. 2,000 on education. Filtered water is purchased from the Calcutta Corporation and distributed in the streets and by house connexions. The North Suburban is a large hospital, with 30 beds for men and 10 for women. The electric tramway from Calcutta has been extended to Belgāchia, where there is a Veterinary college.

Diamond Harbour Village.—Head-quarters of the subdivision of the same name in the District of the Twenty-four Parganas, Bengal, situated in 22° 10′ N. and 88° 12′ E., on the bank of the Hooghly river. Population (1901), 1,036. The village is built on both banks of the Hājīpur creek, which is crossed by a ferry. Diamond Harbour was a favourite anchorage of the Company's ships in olden times. It suffered severely in the terrible cyclone of 1864, which swept away large numbers of the inhabitants. A harbour-master and customs establishment are maintained to board vessels proceeding up the Hooghly, and the movements of shipping up and down the river are telegraphed to Calcutta and published, at intervals throughout the day, in the *Calcutta Telegraph Gazette*. Diamond Harbour is connected with Calcutta by a branch of the Eastern Bengal State Railway, and by a metalled road 30 miles long. A mile to the south is Chingrikhāli Fort, where heavy guns are mounted and the artillery from Barrackpore encamp annually for gun practice. It is the head-quarters of the Salt Revenue department; and a quarantine station has been opened for the accommodation of pilgrims returning from Mecca. Steamers cross daily to Geonkhāli in Midnapore District, and the Assam steamers also touch here. Diamond Harbour contains the usual public offices; the sub-jail has accommodation for 12 prisoners.

Dum-Dum (*Damdama*, meaning a raised mound or battery).—Town in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 38′ N. and 88° 25′ E., 7 miles north-east of Calcutta. The town comprises the municipalities of North and South Dum-Dum, with populations (1901) of 9,916 and 10,904 respectively; North Dum-Dum includes the cantonment, with 4,920 inhabitants. Dum-Dum was the head-quarters of the Bengal artillery from 1783 to 1853, when they were removed to Meerut; at present a detachment of a regiment of British infantry is quartered here in a fine range of barracks. Dum-Dum is also the site of the Government ammunition factory managed by the Indian Ordnance department. The cantonment contains European and native hospitals, a large bazar, Protestant and Roman Catholic churches, and a Wesleyan chapel. In the churchyard are monuments erected to the memory of Colonel Pearse, the first Commandant of the Artillery regiment, and of Captain Nicholl and the officers and men of the Horse Artillery who perished during the retreat from Kābul in 1841. The treaty by which Nawāb Sirāj-ud-daula ratified the privileges

of the British, and restored the settlements at Calcutta, Cossimbazar, and Dacca, was signed at Dum-Dum on February 6, 1757. Dum-Dum was formerly a separate subdivision, which was amalgamated with Bārāsat in 1893. Since that year the civil and criminal administration of the cantonment has been vested in a Cantonment Magistrate, who is also Cantonment Magistrate of Barrackpore. The annual income of the cantonment fund during the decade ending 1901 averaged Rs. 16,200, and the expenditure Rs. 16,600; in 1903-4 they were Rs. 17,500 and Rs. 17,300 respectively. Dum-Dum is a station on the Eastern Bengal State Railway and the junction of the eastern and central sections of that railway; there is a station on the latter section at Dum-Dum cantonment.

The North Dum-Dum municipality was constituted in 1870, the Kadīhāti municipality being amalgamated with it in 1883. The income and expenditure during the decade ending 1901-2 averaged Rs. 4,500 and Rs. 4,400 respectively. In 1903-4 the income was Rs. 6,000, including Rs. 3,000 obtained from a tax on vehicles; and the expenditure was Rs. 5,700. Filtered water is purchased from the Calcutta Corporation and distributed throughout the cantonment. South Dum-Dum municipality was constituted in 1870. The income and expenditure during the decade ending 1901-2 averaged Rs. 9,000 and Rs. 8,800 respectively. In 1903-4 the income was Rs. 13,000, mainly from municipal rates and taxes, such as a tax on houses and lands, a tax on vehicles, and a conservancy rate; and the expenditure was Rs. 13,700. Filtered water is purchased from the Calcutta Corporation and distributed by hydrants. A *melā* or fair is held every year in honour of the Muhammadan saint Shāh Farīd. A large jute-mill has recently been opened at Dakhindārī; and Pātīpukur, a station on the Eastern Bengal State Railway, is rising into importance as a terminus of the jute traffic.

Faltā.—Village in the Diamond Harbour subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 17′ N. and 88° 7′ E., on the bank of the Hooghly river, nearly opposite to its junction with the Dāmodar. Faltā is the site of an old Dutch factory, and it was to this place that the English retreated after the capture of Calcutta by Sirāj-ud-daula in 1756. A fort is situated here, which mounts heavy guns. The steamers plying between Calcutta and Tamlūk in Midnapore District call at Faltā.

Garden Reach.—Town in the District of the Twenty-four Parganas, Bengal, situated in 22° 33′ N. and 88° 19′ E., imme-

diately below Calcutta, of which it forms a suburb, on the bank of the Hooghly river. The suburb is divided for administrative purposes into two portions, the Nemuckmahal Ghāt road dividing the 'Added Area' of Calcutta on the east from the Garden Reach municipality on the west. The population of the latter in 1901 was 28,211. Hindus numbered 12,181; Musalmāns, 15,779; and Christians, 187. The site of the Alīgarh fort, taken by Clive in December, 1756, during the operations for the recapture of Calcutta, may still be seen. The suburb was formerly a favourite European quarter, and contains many fine houses built between 1768 and 1780. The residence of the late ex-king of Oudh was fixed here, and many of his descendants still inhabit the place. Garden Reach is now an important industrial suburb of Calcutta, containing jute-mills, a cotton-mill, and dockyards. Until 1897 the Garden Reach municipality formed part of the South Suburban municipality, but was separated from it in that year. The income during the seven years ending 1903-4 averaged Rs. 49,000, and the expenditure Rs. 46,000. In 1903-4 the income was Rs. 56,400, including Rs. 25,000 derived from a tax on houses and lands, Rs. 14,000 from a conservancy rate, and Rs. 11,000 from a water rate. The expenditure was Rs. 55,700. The municipality is now supplied with filtered water from the Calcutta mains.

Gārulia.—Town in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 49′ N. and 88° 22′ E., on the bank of the Hooghly river. Population (1901), 7,375. It is a busy industrial place, containing jute and cotton mills. The village of SYĀMNAGAR is within the town. Gārulia was included within the North Barrackpore municipality until 1896, when it was constituted a separate municipality. The income of the municipality during the eight years since its constitution has averaged Rs. 9,000, and the expenditure Rs. 8,000. In 1903-4 the income was Rs. 18,000, including a loan of Rs. 5,000 from Government, while the same sum was realized from a tax on persons (or property tax). The expenditure was Rs. 13,000.

Gobardānga.—Town in the Bārāsat subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 53′ N. and 88° 45′ E., on the east bank of the Jamunā river, with a station on the Eastern Bengal State Railway. Population (1901), 5,865. Tradition points to this place as the spot where Krishna tended his flocks; and the name of the adjoining village, Gaipur, is said to be abbreviated from Gopī-

pur, and to denote the city of *gopinīs* or milkmaids, mistresses of Krishna. Sugar factories are numerous, and raw jute and molasses are exported. Gobardānga was constituted a municipality in 1870. The income during the decade ending 1901–2 averaged Rs. 3,600, and the expenditure Rs. 3,100. In 1903–4 the income was Rs. 3,500, mainly from a tax on persons (or property tax); and the expenditure was Rs. 3,400.

Hālisahar.—Town in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 56′ N. and 88° 29′ E., on the bank of the Hooghly river. Population (1901), 10,149. It was formerly called Kumārhāta, and is a noted home of *pandits*; among other devotees of Gaurānga, Rām Prasād Sen lived here. It was constituted a municipality in 1903. The income for six months of 1903–4 was Rs. 4,200, of which Rs. 1,600 was derived from a tax on persons (or property tax), Rs. 1,400 from a conservancy rate, and Rs. 900 from a tax on houses and lands. During the same period the expenditure amounted to Rs. 2,300. At KĀNCHRĀPĀRA within this municipality are the workshops of the Eastern Bengal State Railway.

Hārua.—Village in the Basīrhāt subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 37′ N. and 88° 41′ E. Population (1901), 705. It is the scene of a fair held every February in honour of Pīr Gorā Chānd, a Muhammadan saint, who lived 600 years ago and whose bones (*hār*) are buried here. The fair lasts for a week.

Jaynagar.—Town in the head-quarters subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 11′ N. and 88° 25′ E., 31 miles south of Calcutta and 6½ miles by water from Magrā Hāt station on the Eastern Bengal State Railway. Population (1901), 8,810. Jaynagar was constituted a municipality in 1869. The average income and expenditure during the decade ending 1901–2 were Rs. 6,100. In 1903–4 the income was Rs. 7,600, mainly from a tax on persons (or property tax); and the expenditure was Rs. 7,300.

Kāmārhāti.—Town in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 40′ N. and 88° 23′ E., on the bank of the Hooghly river. Population (1901), 13,216. Within this municipality is the greater part of the village of Dakhineswar, with its group of temples called Rānī Rāsmanī's Nabaratna. These consist of two beautiful central temples, dedicated to Kālī and Krishna,

faced by twelve minor temples in honour of Siva. Kāmārhāti was formerly included within the Baranagar municipality, but was constituted a separate municipality in 1899. The income during the five years since the formation of the separate municipality has averaged Rs. 16,000, and the expenditure Rs. 15,000. In 1903–4 the income was Rs. 17,700, of which Rs. 7,000 was derived from a tax on houses and lands and Rs. 8,000 from a conservancy rate; and the expenditure was Rs. 16,600.

Kānchrāpāra.—Village in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 57′ N. and 88° 26′ E. Population (1901), 1,545. Kānchrāpāra is an important station on the Eastern Bengal State Railway, and the railway workshops are situated here. It lies within the HĀLISAHAR municipality.

Khardah.—Village in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 44′ N. and 88° 22′ E., on the bank of the Hooghly river. Population (1901), 1,777. Khardah is a favourite place of pilgrimage for Vaishnavas, who visit it in honour of Nityānanda, one of the disciples of Chaitanya, who took up his residence here. His descendants are regarded as *gurūs*, or spiritual guides, by the Vaishnavas. There is a fine temple, containing the image of Syām Sundar, a name for the god Krishna. The village lies within the South BARRACKPORE municipality, and is a station on the Eastern Bengal State Railway. Shoe-brushes and bricks are manufactured on a large scale.

Magrā Hāt.—Village in the Diamond Harbour subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 15′ N. and 88° 23′ E. Population (1901), 435. Owing to its position at the confluence of important waterways and upon the Diamond Harbour branch of the Eastern Bengal State Railway, Magrā Hāt is the largest rice mart in the south of the District, and agencies have been opened for the purchase of rice and the sale of kerosene oil. The Church Missionary Society has a church here.

Māniktala.—Town in the District of the Twenty-four Parganas, Bengal, situated in 22° 35′ N. and 88° 23′ E. Population (1901), 32,387, of whom Hindus numbered 22,792, Musalmāns 9,512, and Christians 65. Māniktala is the great eastern industrial suburb of Calcutta, wedged in between the Circular Canal on the west, the New Cut on the east, and the Beliāghāta Canal on the south. Beliāghāta in the south of

the town is the seat of an extensive trade in rice imported from the eastern Districts, while along the frontage of the Circular Canal a brisk business is done in firewood, loose jute, and rice. The other important wards are Ultādānga and Nārikeldānga. Factories are numerous, including a jute-mill, a silk factory, bone-crushing mills, shellac, saltpetre, castor-oil, and soap factories, and four tanneries. The nursery gardens of two Calcutta florists are situated in the town, which is within the jurisdiction of the Commissioner of Police, Calcutta, and forms part of the 'Suburbs of Calcutta' subdivision. Māniktala was comprised in the Suburban municipality until 1889, when it was constituted a separate municipality. The income during the decade ending 1901-2 averaged Rs. 63,000, and the expenditure Rs. 59,000. In 1903-4 the income was Rs. 2,14,000, including a loan of Rs. 25,000 from Government, Rs. 31,000 derived from a tax on houses and lands, Rs. 18,000 from a conservancy rate, and Rs. 7,000 from a tax on vehicles. The incidence of taxation was Rs. 2-1-10 per head of the population. In the same year the chief items of expenditure were Rs. 5,000 spent on lighting, Rs. 3,000 on drainage, Rs. 23,000 on conservancy, Rs. 1,800 on medical relief, Rs. 16,000 on roads, and Rs. 1,300 on education; total, Rs. 74,000.

Naihāti.—Town in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 54′ N. and 88° 25′ E., on the bank of the Hooghly river. Population (1901), 13,604. Naihāti is a station on the Eastern Bengal State Railway and the junction of a branch railway across the Hooghly Bridge which connects with the East Indian Railway. An emigration dépôt is situated in the town; and at Gaurīpur there are large jute and oil-mills. Naihāti was constituted a municipality in 1869. The area within municipal limits has been greatly curtailed by the separation of the Bhātpāra municipality in 1899, and of the Hālisahar municipality in 1903. The income for the five years since its separation from Bhātpāra has averaged Rs. 21,000, and the expenditure Rs. 20,000. In 1903-4 the income was Rs. 13,700, including Rs. 5,000 derived from a tax on persons (or property tax); and the expenditure was Rs. 11,400.

Paltā.—Village in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 48′ N. and 88° 22′ E., on the bank of the Hooghly river, 2 miles above Barrackpore. Population (1901), 2,038. At Paltā are situated the water-works of the Calcutta Corporation. The water is pumped up from the Hooghly river and filtered, and

flows to Calcutta in pipes. At this place also the grand trunk road from Calcutta crosses the Hooghly.

Pānīhāti.—Town in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 42′ N. and 88° 22′ E., on the bank of the Hooghly river. Population (1901), 11,178. Agarpāra, within the municipality, has a church, female orphanage, and school under the management of the Church Missionary Society. Pānīhāti conducts a considerable trade in rice. Until 1900 it was included in the South Barrackpore municipality, but in that year it was constituted a separate municipality. The income for the four years since the separation has averaged Rs. 8,600, and the expenditure Rs. 8,000. In 1903–4 the income was Rs. 10,000, half of which was obtained from a tax on persons (or property tax); and the expenditure was Rs. 9,500.

Rājpur.—Town in the head-quarters subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 26′ N. and 88° 25′ E., 11 miles south of Calcutta. Population (1901), 10,713. Rājpur was constituted a municipality in 1876. The income during the decade ending 1901–2 averaged Rs. 8,400, and the expenditure Rs. 8,200. In 1903–4 the income was Rs. 10,000, half of which was derived from a tax on persons (or property tax); and the expenditure was Rs. 12,000.

Salt-Water Lake.—Swamp in the head-quarters subdivision of the District of the Twenty-four Parganas, Bengal, situated about 5 miles east of Calcutta, between 22° 28′ and 22° 36′ N. and 88° 23′ and 88° 28′ E., with an area of about 30 square miles. This is a low depression, which is being gradually filled by silt deposits of the tidal channels that intersect it. It serves as a cesspool for the sewage of Calcutta. A portion of the lake at Dhāpa is being gradually reclaimed by the deposit of street refuse, which is conveyed out daily from Calcutta by a municipal railway.

Syāmnagar.—Village in the Barrackpore subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 50′ N. and 88° 24′ E., on the bank of the Hooghly river, with a station on the Eastern Bengal State Railway, 19 miles north of Calcutta. Population (1901), 102. A short distance east of the station are the ruins of an old fort surrounded by a moat, 4 miles in circumference, built in the eighteenth century by a Rājā of Burdwān as a refuge from the Marāthās. The fort now belongs to the Tagore family of Calcutta, and its ramparts are studded with thick date plantations. A Sanskrit college and a charitable dispensary are

maintained by Mahārājā Sir Jotindra Mohan Tagore. Syāmnagar lies within the GĀRULIA municipality.

Tāki.—Town in the Basīrhāt subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 35′ N. and 88° 55′ E., on the Jamunā river. Population (1901), 5,089. Tāki is the centre of a considerable rice trade. It was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 2,200 and Rs. 2,100 respectively. In 1903–4 the income was Rs. 2,300, derived chiefly from a tax on persons (or property tax); and the expenditure was Rs. 1,900.

Titāgarh.—Town in the Barrackpore subdivision of the Twenty-four Parganas District, Bengal, situated in 22° 45′ N. and 88° 22′ E., on the bank of the Hooghly river, with a station on the Eastern Bengal State Railway. Population (1901), 16,065, of whom 11,461 were males. Titāgarh was at one time a fashionable place of residence for Europeans, but it is now a busy commercial town containing four jute-mills and a paper-mill. It was formerly included within the South Barrackpore municipality, but in 1895 it was constituted a separate municipality. The income during the nine years since the separation has averaged Rs. 19,000, and the expenditure Rs. 16,000. In 1903–4 the income was Rs. 40,000, including a loan of Rs. 13,000 from Government, Rs. 11,000 derived from a tax on houses and lands, and Rs. 12,000 from a conservancy rate; the expenditure was Rs. 25,000.

Tollygunge.—Town in the head-quarters subdivision of the District of the Twenty-four Parganas, Bengal, situated in 22° 30′ N. and 88° 19′ E., 4 miles south of Calcutta. Population (1901), 12,821. Tollygunge is a southern suburb of Calcutta, with which it is connected by an electric tramway, and the northern portion of it forms part of the 'Added Area' of Calcutta. It contains a police-station and the barracks of the Twenty-four Parganas police reserve, a steeplechase course, and the grounds of the Tollygunge Club, in which golf links have been laid out. Several of the descendants of Tipū Sultān's family have their residence here. Tollygunge was included in the South Suburban municipality until 1901, when it was constituted a separate municipality. The income and expenditure during the three years since the constitution of the municipality averaged Rs. 15,000. In 1903–4 the income was Rs. 18,000, half of which was obtained from a tax on houses and lands; and the expenditure was Rs. 19,500.

Calcutta (*Kalikātā*).—Capital of the Indian Empire and

the official residence of the Viceroy and Governor-General, situated in 22° 34′ N. and 88° 22′ E., on the east or left bank of the Hooghly river, within the Twenty-four Parganas District, Bengal. The city lies about 86 miles from the sea, and is only 18 to 21 feet above mean sea-level. Stretching northward for 6 miles along the river-bank, and bounded on the east by the Circular Canal and the Salt Lakes, it covers at the present day an area of 20,547 acres, of which only 1,792 are rural, and 1,113 acres form the Maidān. Calcutta is so called after a village which formerly occupied the site of the modern Bow Bazar: the name is supposed by some to be connected with the worship of the goddess Kālī. Site and description.

The city is bounded on all sides by suburban municipalities, which have been excluded from Calcutta for purposes of municipal administration. COSSIPORE-CHITPUR on the north, MĀNIKTALA on the east, and GARDEN REACH on the south-west, as well as HOWRAH on the west bank of the Hooghly river, are industrial suburbs, which form an integral part of the life of the metropolis. If these be included, Calcutta has a population of 1,106,738, which is greater than that of any European city except London, Constantinople, Paris, and Berlin, and of any city in America except New York, Chicago, and Philadelphia. Excluding China, the population of whose cities is uncertain, the only city in Asia with more inhabitants than Calcutta is Tokio; and next to London, it is the most populous city in the British empire. The present article is, however, confined to the municipal town of Calcutta as defined in Bengal Act III of 1899, Fort William, and the water area, the population of which (1901) is 808,969, 4,612, and 34,215 respectively.

The importance of Calcutta lies in its position as the capital of the Empire and as a seaport situated on a navigable river and connected by converging lines of railways, rivers, navigable canals, and roads with the rich valleys of the Ganges and Brahmaputra, whose produce it exports oversea, while it supplies their dense population with the products and manufactures of other countries.

In the centre of the city stands Fort William, surrounded by the noble expanse of park known as the Maidān. North of this are the shops and business houses of the Europeans, whose residential quarter bounds it on the east. To the south and south-east lie the European suburbs of BALLYGUNGE and ALIPORE, which latter contains the residence of the Lieutenant-Governor of Bengal. Surrounding the European quarter on all

sides is the native town. Immediately north of the European commercial quarter is Burra Bazar, the chief centre of native business; the buildings are mainly one-storeyed masonry shops, and it is only here and in the adjoining quarters of Jorābāgān and Bow Bazar that brick buildings are more numerous than tiled huts. Three-fifths of the whole population live in the latter, which have mud or wattle walls and are known as *kachcha* houses. The native town is traversed by three main roads from north to south, and by five or six roads from east to west, but with these exceptions it is extremely ill-arranged. The lanes are narrow, tortuous, and badly lit; the dwellings are overcrowded and insanitary; and the overwhelming proportion of one-storeyed houses gives this quarter a peculiarly squalid appearance which belies the proud title of a 'city of palaces' that Calcutta claims.

The city of Calcutta includes the area under the control of the municipal corporation, or Calcutta proper, together with Fort William and the Maidān (1,283 acres), which are under the military authorities, and the water area, or port and canals, with an area of 7,310 acres. Calcutta proper again is divided into the 'Old Town' and the 'Added Area.' The former, which covers 3,766 acres, is divided into eighteen wards, and is situated between the Lower Circular Road and the Hooghly river. This is the tract within the old Marāthā Ditch, corresponding with the original civil jurisdiction of the Sadar Dīwāni Adālat. The 'Added Area' lies south and east of the Old Town, and is separated from it by the Circular Road; it contains 8,188 acres, distributed over eleven wards. It was excluded from the Suburban municipality and added to Calcutta by Bengal Act II of 1888.

Geology.

The soil on which Calcutta is built has been formed at a comparatively recent date by the alluvial deposits of the Gangetic delta, and excavations made for tanks and foundations disclose alternate layers of sand and clay. A bore-hole sunk in Fort William in 1840 revealed an ancient land surface at a depth of 382 feet.

Climate, temperature, and rainfall.

The climate is hot and moist. The mean temperature averages 79°, the mean maximum being 102° in May and the mean minimum 48° in January. The average temperature in the hot season is 85°, in the rains 83°, and in the cold season 72°. Humidity averages 78 per cent. of saturation, ranging from 69 per cent. in March to 89 per cent. in August. The annual rainfall averages 60 inches, and the average number of rainy days in the year is 118.

At the beginning and close of the rainy season Calcutta is frequently visited by cyclones, the most disastrous having occurred in 1737, 1842, 1864, and 1867. In 1737 the steeple of St. Anne's Church fell to the ground, many houses were blown down, and all but one of the ships in the river were driven ashore. In the cyclone of 1864 as many as 49 persons were killed and 16 injured; several brick houses were destroyed or damaged, and only 23 of the 195 vessels in the port escaped without injury. Cyclones.

The earthquake of June 12, 1897, was severely felt in Calcutta; the steeple of the Cathedral was destroyed and 1,300 houses were injured. Earthquake.

Calcutta is mentioned in a poem of 1495 as a village on the bank of the Hooghly. When the Portuguese began to frequent the river about 1530, SĀTGAON, not far from Hooghly on the old Saraswatī river, was the great emporium of trade. Owing to the shallowness of the upper reaches of the river, however, ships used to anchor at Garden Reach, and their goods were sent up to Sātgaon in small boats; and a market thus sprung up at Betor, near Sibpur, on the right bank of the Hooghly, which the Portuguese made their head-quarters. In the sixteenth century the Saraswatī began to silt up, and Sātgaon was abandoned. Most of its inhabitants went to the town of Hooghly, but about the middle of the century four families of Bysakhs and one of Seths founded the village of Gobindpur on the site of the modern Fort William. Shortly after this the Portuguese moved to Hooghly, deserting Betor, and the trade of the latter place was gradually transferred to Sūtānuti ('cotton mart') in the north of modern Calcutta. Job Charnock of the English East India Company came to this place in 1686, after his skirmish with the Mughals at Hooghly, and formulated certain demands on the Nawāb. These were rejected by the latter, who ordered his subordinates to drive the English out of the country. Charnock retaliated by destroying the salt-houses and forts at Tāna or Garden Reach and seizing Hijilī. He was shortly afterwards superseded by Captain Heath, who came out from England with instructions to occupy Chittagong. The attempt on this place failed; but on August 24, 1690, the English returned to Sūtānuti under Charnock, at the invitation of the Nawāb, and laid the foundation of modern Calcutta. History.

Several reasons led to the selection of this place as the head-quarters of English trade in Bengal. The Hooghly river tapped the rich trade of the Ganges valley, and Calcutta was

situated at the highest point at which the river was navigable for sea-going vessels; it was moreover protected against attack by the river on the west and by morasses on the east, and it could be defended by the guns of the shipping.

In 1696 the rebellion of Subha Singh, a Burdwān *zamīndār*, assumed formidable dimensions, and the English applied to the Nawāb for permission to fortify their settlement. This was granted; and a fort was constructed on a site extending from the modern Fairlie Place on the north to Koila Ghāt Street on the south, the river forming the western and what is now Dalhousie Square the eastern boundary. It was completed in 1702. Four years previously the three villages of Calcutta, Sūtānuti, and Gobindpur had been purchased from the governor of Hooghly.

The town grew rapidly; within a short time a wharf, a good hospital, a church, and barracks were erected; and in 1707 the East India Company declared it a separate Presidency accountable only to the Directors in London. The new settlement was perpetually harassed by the Muhammadan governors of Bengal; and in 1717 the Council sent an embassy to Delhi to procure the recognition of their rights in the country and permission to purchase property on the bank of the Hooghly. The emperor granted the permission sought for, but it was to a great extent rendered nugatory by the determined opposition of the Nawāb.

In 1742 the inhabitants commenced to dig an entrenchment round their settlement as a defence against the Marāthās, who were then raiding Bengal. This entrenchment, known as the Marāthā Ditch, followed the course of the modern Circular Road, but it was never completed along the southern boundary. The scare caused by the Marāthā invasion and the growing trade of the Company brought a large influx of new settlers, and in 1752 Holwell calculated the population at 409,000, though this was probably an over-estimate, as the number of houses was still less than 15,000. The original settlement round the Fort was protected by palisades; but the Company's servants lived in the quarter now bounded by Canning Street on the north, Hastings Street on the south, Mission Row on the east, and the river on the west. Within this area there were in 1753, exclusive of the Fort and its warehouses, no less than 230 masonry structures, and the native portion of the town contained about the same number.

The chief event in the early history of Calcutta is its capture in 1756 by Sirāj-ud-daula, Nawāb of Bengal. The native

troops deserted and the Europeans were driven into the fort, which was practically indefensible, as its guns were masked by the surrounding buildings. The Governor and many of the officials made their escape to the ships, which thereupon dropped down the river, and the garrison, under the command of Holwell, were driven to surrender. They were forced, to the number of 146, into a small room, measuring only 18 by 14 feet, which is known in history as the Black Hole. Here they were left for the night. It was June 20; the heat was intense, and the two small grated windows were quite insufficient to give air to the closely packed crowd, who endured terrible sufferings. When the morning came and the door was opened, only twenty-three were found alive.

Calcutta was recaptured by Clive and Admiral Watson early in 1757; and after the battle of Plassey, Mīr Jafar gave the English the *zamīndāri* of the Twenty-four Parganas, as well as a free gift of the town and some of the adjacent villages. Heavy compensation was paid to the merchants and the Company's servants and adherents for their losses, and permission was granted to establish a mint. From this date Calcutta has enjoyed uninterrupted prosperity. With part of the compensation money received from the Nawāb, Gobindpur was cleared of its inhabitants and the foundations of the present fort were laid. It was not finished till 1773, and is said to have cost two millions sterling, half a million of which was spent on works to protect the west face from the erosion of the river. The clearing of the jungle round the fort led to the formation of the Maidān. In 1766 the General Hospital was removed to its present site, and at this period the European quarter began to extend southwards along Chowringhee. In 1773, by an Act of Parliament, the Governor and Council of Bengal were invested with control over the Indian possessions of the Company, and soon afterwards Warren Hastings removed the treasury from Murshidābād to Calcutta.

Municipal history.

The history of municipal administration in Calcutta dates from 1727, when the first corporation came into existence. It consisted of a mayor and nine aldermen, and its duties were to collect ground rents and town dues, and to make the necessary repairs to roads and drains. The amount thus spent was, however, insignificant. An effort was made, about 1757, to organize a municipal fund by levying a house tax, but the scheme came to nothing. The duty of keeping the town in order rested with the Police Commissioner; but its insanitary condition was notorious, and in 1780 the native town was thus described

by William Mackintosh (*Travels in Europe, Asia, and Africa*, 2 vols., 1782):—

'It is a truth that, from the western extremity of California to the eastern coast of Japan, there is not a spot where judgement, taste, decency, and convenience are so grossly insulted as in that scattered and confused chaos of houses, huts, sheds, streets, lanes, alleys, windings, gullies, sinks, and tanks, which, jumbled into an undistinguished mass of filth and corruption, equally offensive to human sense and health, compose the capital of the English Company's Government in India. The very small portion of cleanliness which it enjoys is owing to the familiar intercourse of hungry jackals by night, and ravenous vultures, kites, and crows by day. In like manner it is indebted to the smoke raised on public streets, in temporary huts and sheds, for any respite it enjoys from mosquitoes, the natural productions of stagnated and putrid waters.'

By a statute of George III Justices of the Peace were appointed for the town in 1794, and regular assessments were authorized. The Circular Road was metalled, and the conservancy establishment was increased. But many defects remained; and in 1803 Lord Wellesley pointed out the extremely defective construction of the public drains and watercourses, the absence of any regulations in respect of the situation of public markets and slaughter-houses, the irregularity of the buildings and the dangerous condition of the streets, and appointed a Town Improvement Committee of 30 members to carry out the necessary reforms.

Since 1793 it had been the practice to raise money for public improvements by means of lotteries, 10 per cent. of their value being set aside for public works or charitable purposes. As long as the Town Improvement Committee existed, these funds were made over to it; but in 1817 a Lottery Committee was formed, which was employed for twenty years in schemes for the improvement of the town. During this period a great advance was undoubtedly made. The Town Hall was built and the Beliāghāta canal dug, and a large number of streets were opened out, including the Strand Road, Amherst Street, Colootolla and Mirzapur Streets, Free School Street, Kyd Street, Canal Road, Mango Lane, and Bentinck Street, and the long roadway formed by Cornwallis Street, College Street, Wellington Street, and Wellesley Street, with the four adjoining squares. Arrangements for watering the streets were also introduced. In 1820 a systematic plan for road-metalling was adopted at an annual cost

of Rs. 25,000. Public opinion in England having condemned this method of providing funds for municipal purposes, the Lottery Committee came to an end in 1836.

Meanwhile, under the Act of 1794, the Justices had met the expenses of the conservancy and police of the town from a tax on houses and licences for the sale of liquor. In 1819 the house tax realized a little over 2½ lakhs, and in 1836 this had risen to 3 lakhs, while 1½ lakhs was derived from excise. The expenditure on conservancy and police was at this period 5¼ lakhs, the difference being made up by Government.

In 1810 the principle of municipal taxation was extended to the suburbs. In 1840 an Act was passed dividing Calcutta into four divisions, and authorizing the ratepayers, on an application made by two-thirds of them, to undertake their own assessment, collection, and management of the rates up to a limit of 5 per cent. on the assessable property in Calcutta. Nothing came of this Act; and in 1847 the Justices were replaced by a Board of seven paid members, four of whom were to be elected by the ratepayers. They were empowered to purchase and hold property for the improvement of Calcutta and to make surveys, and were entrusted with the maintenance of the streets and drainage. In 1852 their number was reduced to four, two being appointed by Government and two elected; and they were allowed a maximum salary of Rs. 250 a month. The house tax was raised first to 6¼ per cent. and later to 7½ per cent., and a 2 per cent. lighting rate and a tax on carts were authorized; horses and vehicles had already been made taxable by the Act of 1847. The Commissioners were required to set aside 1½ lakhs for the sewerage and drainage of the town. In 1856 their number was reduced to three, all of whom were appointed by the Lieutenant-Governor.

In 1863 the municipal government was vested in a body composed of all the Justices of the Peace for the town of Calcutta, together with all the Justices for the Province who happened to be resident in the town. This body elected its own vice-chairman and had a regular health officer, engineer, surveyor, tax-collector, and assessor. A water rate was imposed, and the house tax raised to a maximum of 10 per cent. The Justices' powers of borrowing were extended by several Acts, and during their period of office the drainage and water system of the town were largely developed. The municipal slaughter-houses were opened in 1866, and the New Market in 1874. Footpaths were made along the main

thoroughfares, Beadon Square was opened, and in all about 2 crores were spent on the improvement of the town.

In 1876 a new corporation was created, consisting of 72 commissioners with a chairman and vice-chairman; 48 of the commissioners were elected by the ratepayers and 24 appointed by the Local Government. This body completed the original drainage scheme, largely increased the supply of filtered and unfiltered water, and effected many other improvements, including the construction of Harrison Road.

In 1888 the municipal boundaries were extended by the inclusion of a large portion of the suburbs lying south and east of the Circular Road. Seven wards were added, and additions were made to three other wards in the north of the city. The number of municipal commissioners was raised to 75, of whom 50 were elected, 15 appointed by Government, and the remaining 10 nominated by the Chamber of Commerce, the Trades Association, and the Port Commissioners. During the following ten years the filtered water-supply was further extended, at a cost of 18 lakhs, and an underground drainage scheme for the 'Added Area' was started. A *dhobikhānā*, or laundry, and an incinerator were constructed, and a number of insanitary tanks were filled up and replaced by roads and squares. This constitution remained unaltered until 1900, when it was replaced by the system of municipal government now in force, which will be described farther on.

The people.

The population of Calcutta in 1901 was 847,796, the mean density being 41 persons per acre for the whole city, and 68 in Calcutta proper. By far the most crowded ward is Colootolla with 281 persons per acre, followed by Jorāsānko (202), Jorābāgān (201), and Moocheepāra (199); these wards are in the centre of the native commercial quarter. The lowest density occurs in the suburbs of Alipore and Ballygunge, where much land is still not built over. The greatest increase in population during the last decade has occurred in the wards which were already most populous in 1891. Judged by European standards, the city is seriously overcrowded; more than half the inhabitants have less than half a room per head, and 90 per cent. have three-quarters of a room or less. In Burra Bazar no less than 9,531 persons out of 31,574 are crowded four or more into each room. Calcutta in normal years is fairly healthy, but of late the mortality has been greatly swollen by the plague, which in 1903 accounted for 8,222 deaths out of a total of 29,765; the other chief diseases are fever, dysentery, cholera, and respiratory complaints.

Early estimates of the population were made from time to time; but they were partial and untrustworthy, and it was not until 1876 that the first complete Census was taken. The population then enumerated for the whole area of modern Calcutta was 611,784, which grew to 612,307 in 1881, 682,305 in 1891, and 847,796 in 1901. On the last two occasions the increases have amounted to 11 and 24 per cent. respectively.

Only a third of the population of Calcutta in 1901 had been born there; half had been born in other parts of Bengal and one-seventh in other parts of India. The number of persons born in other countries in Asia is 2,973, in Europe 6,701, in Africa 96, in America 175, in Australia 80, and at sea 9. Of the number born in other parts of Bengal, the Twenty-four Parganas supplies nearly one-fifth, and large numbers come from Hooghly, Gayā, Patna, Midnapore, and Cuttack. Of those from other parts of British India, the majority are recruited from the United Provinces, chiefly from Benares, Azamgarh, Ghāzīpur, and Jaunpur. Of other Asiatics, the Chinese, who congregate in China Bazar and the Bow Bazar and Waterloo Street sections, account for 1,709, of whom only 141 were females. Of those born in Europe, 5,750 are British and 951 come from other countries, France (176), Germany (168), and Austria (108) alone having more than 100 representatives.

In the whole population there are only half as many women as men. This is due to the large number of immigrants, among whom there are only 279 females to 1,000 males; the majority of these are temporary settlers who leave their families at home. Another result of the large volume of immigration is that 44 per cent. of the entire population are male adults, which is double the proportion for the whole of Bengal.

No less than 57 different languages are spoken by people living in Calcutta, of which 41 are Asiatic and 16 non-Asiatic. The Bengali-speaking population numbers 435,000 and the Hindī-speaking 319,000. About 31,000 persons speak Oriyā, 29,000 English, and 24,000 Urdū.

By religion, 65 per cent. are Hindus, 29·4 per cent. Muhammadans, and 4 per cent. Christians, leaving only about 1 per cent. for all other religions combined; the latter include 2,903 Buddhists, 1,889 Jews, and 1,799 Brahmos. Hindus preponderate in the north of the city, while the chief Musalmān centres are Colootolla and Moocheepāra, and the outlying wards near the docks and canals.

Christian missions. During the decade ending 1901 the growth of the Christian population was 31 per cent. The number of native Christians during the same period increased from 6,671 to 9,872, or by 49 per cent., the Roman Catholic missions with a gain of 88 per cent. being the most successful. The chief Protestant bodies are the Church Missionary Society, the Oxford Mission, the Baptist Mission, the London Mission, the Episcopal Methodist Mission, and the missions of the Established and Free Churches of Scotland. Besides direct evangelization, most of the missions maintain schools and colleges, and thus promote the cause of higher education.

Castes and occupations. Brāhmans (83,000) are the most numerous caste, and with Kāyasths (67,000), Kaibarttas (37,000), Subarnabaniks and Chamārs (25,000 each), Goālās (23,000), and Tāntis (21,000) account for more than half the Hindu population. Among the Muhammadans 91 per cent. are Shaikhs and 5 per cent. Pathāns, while Saiyids number 8,000. Europeans number 13,571, and Eurasians 14,482.

The main features of the statistics of occupation prepared at the Census of 1901 are reproduced below:—

Main head of occupation.	Workers.		Total number of workers and dependents.	Percentage to whole population.
	Male.	Female.		
Government service	18,737	213	39,590	5
Pasture and agriculture	12,413	1,379	30,754	4
Personal service	81,704	23,649	148,933	18
Preparation and supply of material substances	140,110	12,970	271,713	32
Commerce, trade, and storage	123,698	1,981	203,854	24
Professions	20,082	2,448	54,812	6
Unskilled labour	33,054	16,967	61,523	7
Independent of labour	12,171	6,629	36,617	4
Total	441,969	66,236	847,796	100

Nearly a third of the inhabitants of Calcutta are engaged in manufactures, and nearly a fourth in trade, while personal service accounts for a sixth. Assuming that a man does not begin to work until fifteen years of age, it would appear that no less than 96 per cent. of the males above that age are actual workers; the corresponding proportion in the case of women is only 32 per cent. The industrial population is most numerous in Colootolla, Moocheepāra, Jorāsānko, Bhawānīpur, Intally, and Beniāpukur, while Jorāsānko, Burra Bazar, and Jorābāgān wards have the greatest number of persons engaged in commerce. The professional element is strongest in

Burtolla in the north, and in Bhawānīpur in the south of the city.

Calcutta itself contains but few factories, only three jute-mills and two jute-presses lying within its limits. In the outskirts of the city, however, several smaller industrial concerns are situated, including 63 oil-mills chiefly worked by cattle, 24 flour-mills, 2 rice-mills, 16 iron foundries, and 12 tanneries, which employ less than 13,000 persons all told. The chief home industries are pottery and brass-work; but Calcutta exports little of its own manufactures, and it is to commerce that it mainly owes its position. Arts and manufactures.

Calcutta came into existence as a trading town, because its position enabled merchants to tap the rich traffic of the valley of the Ganges. The luxurious courts of the Mughal rulers had fostered the manufacture at Dacca and Murshidābād of beautiful silks and muslins, which were eagerly bought up in Europe. The saltpetre of Bihār was in great demand in England for the manufacture of gunpowder during the French Wars; and rice, sesamum oil, cotton cloths, sugar, clarified butter, lac, pepper, ginger, myrabolams, and *tasar* silk were also in request. Bengal produced all these articles, and Calcutta was the only seaport from which they could be exported. Commerce and trade.

The demand for Indian muslins gradually died out in Europe, while early in the nineteenth century Lancashire began to export manufactured cotton goods to India, and the introduction of steam-power placed the local weavers at such a disadvantage that piece-goods are now by far the largest article of import into Bengal, while the export of silk and cotton manufactures has practically ceased. The export of jute, on the other hand, has grown enormously since the middle of the nineteenth century, and the production of oil-seeds and tea has vastly increased. Bengal coal is in great demand all over India, and salt and mineral oils are largely imported. Through all these vicissitudes of commerce, Calcutta has more than held its own, and the development of railways and of steamer routes along the main waterways has greatly strengthened its position, so that it now focuses the trade of Assam as well as of Eastern Bengal and the Gangetic valley.

The foreign trade of the port in 1903–4, exclusive of treasure, was valued at 90·54 crores, of which 57·04 crores represented exports; and the coasting trade was valued at 11·61 crores, of which 6·66 crores represented exports. The total Sea-borne trade.

value of the sea-borne trade, including treasure, was 112·92 crores.

Foreign trade.

The steady progress of foreign trade in recent years is indicated by the figures below, which show the average annual value of the foreign imports and exports of merchandise (omitting treasure) during successive quinquennial periods:—

Five years ending	Lakhs of rupees.		Five years ending	Lakhs of rupees.	
	Imports.	Exports.		Imports.	Exports.
1875	16,48	23,59	1895	25,95	39,97
1880	17,80	27,78	1900	28,46	45,59
1885	21,50	33,08	Four years ending	Per year.	Per year.
1890	23,44	35,23	1904	32,66	54,28

The chief imports into Calcutta are cotton goods, representing in 1903–4 a value of over 16 crores. Next in importance are treasure, metals, oil, sugar, and machinery; and these are followed by woollen goods, hardware and cutlery, salt, liquors, apparel, drugs, and railway material. About seven-eighths (in value) of the imports came from Europe, three-quarters of the whole being from the United Kingdom.

The chief exports are raw and manufactured jute, tea, opium, hides and skins, oilseeds, grain and pulses, indigo, lac, raw cotton, coal, raw silk, saltpetre, and oils. The most striking feature in the growth of the export trade has been the enormous increase in the shipments of jute and coal. The exports of jute have risen from 8 crores in 1893–4 to nearly 20 crores in 1903–4, and now form about three-eighths of the outward trade; while the shipments of coal to foreign ports amounted in 1901 to more than half a million tons, as against only 8 tons in 1880. During the same period the imports of foreign coal dwindled from 70,000 to 2,000 tons. More than half of the export trade was with European countries, the United Kingdom taking a third of the whole. Of continental countries Germany took almost as much as all the others combined. The trade with the United States came next to that of the United Kingdom, and China took rather less than Germany.

Coasting trade.

The coasting trade has been influenced considerably by extension of railway communications, and by the development of direct steamship communications between other Indian ports and abroad. The value of imports in 1903–4 was 504 lakhs, of which 462 lakhs was the value of Indian

produce and 32 lakhs of foreign merchandise, while 10 lakhs represented treasure. The exports were valued at 726 lakhs, of which 587 lakhs was the value of Indian produce and 79 lakhs that of foreign merchandise, treasure amounting to 60 lakhs. The chief ports with which the coasting trade is carried on are Rangoon, Moulmein, Akyab, Bombay, and Madras. The imports are cotton goods and salt from Bombay, rice and mineral oil from Burma, and sugar, vegetable oil, and oilseeds from Madras; and the exports are grain and pulses, coal, jute and gunnies, spices, tobacco, and tea.

In respect of internal trade, the principal articles which make up the imports to Calcutta are:—from Bengal, raw and manufactured jute, rice, coal, linseed, opium, tea, grain and pulses, hides and skins, silk, and indigo; from the United Provinces, opium, oilseeds, grain and pulses, hides and skins, and wrought brass; from Assam, tea, oilseeds, grain and pulses, and lime. In 1901–2 the imports from Bengal were valued at nearly 49 crores. Calcutta being the chief distributing centre of Bengal, the principal articles exported to the interior are the same as those enumerated under the head of foreign imports. The total exports from Calcutta by rail, road, and river were valued in 1903–4 at nearly 38 crores. Internal trade.

The chief associations connected with the trade and commerce of the city are the Bengal Chamber of Commerce (founded in 1834) with its affiliated societies, and the Royal Exchange, the Bengal Bonded Warehouse Association, the Calcutta Trades Association, and the Bengal National Chamber of Commerce. Trade associations.

Three great railways converge on Calcutta. The East Indian Railway connects Calcutta with Bombay, the United Provinces, and the Punjab, and is the outlet for the rich traffic of the Ganges valley. Its terminus is on the west bank of the river at Howrah; but a branch crosses the Hooghly by a bridge at Naihāti, 25 miles up the river, providing access to the docks at Kidderpore over the Eastern Bengal State Railway. The Bengal-Nāgpur Railway runs through Orissa to Madras, and westwards through the Central Provinces to Bombay; its terminus is also at Howrah, but a wagon ferry plies between Shalimār and the docks. The Eastern Bengal State Railway, the terminus of which is at Sealdah, connects Calcutta with North and East Bengal and Assam, and with Diamond Harbour. Communications.

The railways, however, by no means monopolize the traffic. Numerous native craft ply up and down the rivers, along the

channels through the Sundarbans which connect Calcutta with Eastern Bengal and the valley of the Brahmaputra, and on the Midnapore and Orissa Coast Canals. There are also several large steamer companies, whose vessels navigate these inland waters and carry an extensive coasting trade to the Orissa ports; the most important of these are the India General, the Calcutta Steam, and the River Steam Navigation Companies.

The port. The port was formerly under direct Government management, but in 1870 a Port Trust was formed, consisting at first of 12, and afterwards of 15 commissioners. The Strand Bank lands were subsequently made over to them at an annual quit-rent of Rs. 37,392. The value of the property taken over by the Trust was estimated at 27·65 lakhs, and with further advances the debt was consolidated into a loan of 60 lakhs. During the last thirty years the commissioners have been adding considerably to the facilities of the port. In 1870 there were only six screw-pile jetties, 6 cranes, and 4 sheds for the accommodation of the sea-going trade; whereas now there are 6 unloading berths for sea-going vessels at the jetties, with a frontage of 2,982 feet, and all the loading is done separately at the Kidderpore docks. These docks, which were constructed in 1884–5 at a cost of 285 lakhs, consist of a basin, connected by a double passage with the wet docks, which accommodate 12 vessels, and of two graving docks. The Petroleum Wharf at Budge-Budge was established in 1886, and the Tea Warehouse in 1887. In 1889 the Port Commissioners were made the Conservators of the port. They have their own dockyard and workshop, and they maintain a staff of assistant harbour masters, who take over the pilotage of all vessels from Garden Reach; they license all cargo boats and pay three-fourths of the cost of the river police; they survey and prepare charts of the river from Calcutta to the sea, and are responsible for the lighting of the Hooghly.

The revenue of the Port Trust in 1903–4 amounted to 80 lakhs, and the expenditure to 77 lakhs. The greater part of the income is derived from a toll of 4 annas a ton on all goods shipped or discharged. The capital debt amounts to 501 lakhs, and the book value of the Trust property is returned at 656 lakhs, exclusive of the Strand Bank and Howrah foreshore lands, and an accumulated sinking fund of 42 lakhs.

The Hooghly pilots. Even before the foundation of Calcutta, the East India Company had found it necessary to maintain a special staff to guide ships through the difficult channels of the Hooghly. The Pilot Service is now a Government department, consisting

in 1903–4 of 58 officers paid by fees. Some account of the action taken from time to time to keep the channels open, and to facilitate navigation, will be found in the article on the HOOGHLY RIVER.

Shipping.

The trade of the port has grown up since 1727, when the shipping was estimated at only 10,000 tons. The steady growth in recent years will be seen from the following statement:—

	Entered.		Cleared.	
	Number of vessels.	Tons.	Number of vessels.	Tons.
1886–7 . . .	1,387	1,553,575	1,419	1,620,877
1891–2 . . .	1,446	1,912,681	1,416	1,849,676
1896–7 . . .	1,576	2,070,786	1,579	2,060,867
1901–2 . . .	1,499	2,869,700	1,514	2,873,730
1903–4 . . .	1,563	3,174,946	1,569	3,175,263

The most noticeable features of recent years are the substitution of steam for sailing vessels, the rapid growth of the coasting trade, and the increase in the size of the vessels visiting the port. In 1886–7 the number of sailing vessels was 465, but in 1903–4 it had dropped to 87, and only 29 of these hailed from foreign ports. During the same period the volume of the coasting trade has grown from 1,410,000 tons to 3,317,000 tons; the average tonnage of vessels engaged in the foreign trade has increased from 1,449 to 2,622 tons, and that of coasting vessels from 881 to 1,679 tons.

Roads and bridges.

Up to 1867 only two of the roads in Calcutta were metalled with stone; but in 1905 there were 300·43 miles of road, of which 117 miles were metalled. The roads are maintained by the Corporation, with the exception of those on the Maidān, which are under the charge of the Public Works department. The city is intersected by four main roads running parallel with the river. The most westerly of these, known as the Strand Road, which has been formed by successive reclamations of the foreshore, skirts the river bank from Hastings to Nimtolla, passing by Fort William, the Eden Gardens, and the Jetties. East of this is the Chowringhee Road with its row of lofty houses facing the Maidān, which a traveller of the eighteenth century described as 'an entire village of palaces.' This road, with its northern continuations, Bentinck Street and the Chitpur Road, occupies the site of the old pilgrim road to Kālī Ghāt; and its southern continuation, known as the Russa Road, is still the route for pilgrims visiting that shrine. Between this and the Lower Circular Road is a street

running through the heart of the city, the various sections of which are called Wellesley Street, College Street, and Cornwallis Street; and to the east of it the Lower Circular Road sweeps round the city, one section of it following the course of the old Marāthā Ditch. These four main roads are linked by a number of cross streets, the most important of which are Park Street, passing through the European quarter and so called because it originally bordered the spacious garden of Sir Elijah Impey; Dhurrumtolla Street, passing through a quarter largely inhabited by Eurasians; Lāl Bazar and its continuation Bow Bazar, in the centre of the native town, presenting a mass of densely packed houses and shops; Canning Street and Harrison Road, named after Lord Canning and a former chairman of the Corporation; and, to the north of the town, Sobhā Bazar and Grey Street. From Government House to Kidderpore, 2 miles to the south, stretches the oldest road in the Maidān, known as the 'Old Course' and described in 1768 as being 'out of town in a sort of angle made to take the air in'; to the north this road runs into Old Court-house Street, so called from the old court-house pulled down in 1792. Starting from Kidderpore, Garden Reach and Circular Garden Reach Roads connect the docks and the mills fringing the Hooghly with the city, while to the south Diamond Harbour Road links Calcutta with the harbour after which it is named.

Calcutta is connected with the important town of Howrah, on the west of the river, by several ferries and also by a floating bridge opened in 1874. This structure, supported on pontoons, is 1,530 feet in length between the abutments, and has a roadway for carriages 48 feet in width with footpaths of 7 feet on either side. The bridge is opened three times a week to allow ships to pass to the dockyards above, and while it is open a ferry steamer plies across the river. Bridges over Tolly's Nullah at Kidderpore, Alipore, and Kālī Ghāt connect the south-east portion of the present city with the 'Old Town.' On the north the main roads converge at the Chitpur Bridge, by which the old grand trunk road crosses the Circular canals.

Lines of tramway run from the High Court to Tollygunge, Nimtolla Ghāt, and Sealdah, and from the Esplanade to Chitpur, Shām Bazar, Kidderpore, and Belgāchia. These tramways have been recently electrified. There is a large suburban traffic along all the main lines of railway, and also on two small light railways from Howrah to Amtā and Sheakhala.

In the 'Old Town' civil justice is administered by a Judge of the High Court, who sits singly and tries cases above Rs. 2,000 in value and suits concerning land; and by the Small Cause Court with five Judges, who try suits up to Rs. 2,000 in value. In the 'Added Area' a Small Cause Court and two Munsifs' courts sit at Sealdah, and three Munsifs' courts at Alipore; these are subordinate to the District Judge of the Twenty-four Parganas. Both the District Judge and the Additional Judge of the Twenty-four Parganas have jurisdiction in Calcutta under the Land Acquisition Act. Criminal justice is administered in the 'Old Town' by three stipendiary and a number of honorary Presidency Magistrates. The High Court holds Criminal Sessions, and hears appeals from the Presidency Magistrates. In the 'Added Area' the Sessions Judge and the District Magistrate of the Twenty-four Parganas have criminal jurisdiction. Two stipendiary magistrates sit, one at Alipore and the other at Sealdah, and there are also several honorary magistrates. Throughout Calcutta cases under the Municipal Act are tried by a stipendiary municipal magistrate. The Chief Presidency Magistrate is the presiding officer in the court for the trial of pilots, and also Judge of the Court of Survey for the Port of Calcutta. Civil and criminal justice.

The Government revenue receipts under the main heads amounted in 1903-4 to 88·5 lakhs, of which Rs. 18,000 was derived from land revenue, 29·7 lakhs from stamps, 33·3 lakhs from excise and opium, and 25·4 lakhs from income-tax. The total revenue receipts in 1880-1, 1890-1, and 1900-1 were 33·5 lakhs, 61·4 lakhs, and 80·1 lakhs respectively. In 1881 the income-tax had not been imposed. Revenue.

The Collector of Calcutta, who is assisted by a Deputy-Collector, is Collector of stamp revenue in the 'Old Town,' and is Superintendent of excise revenue throughout Calcutta, and in the municipalities of Cossipore-Chitpur, Māniktala, Garden Reach, Howrah, and Bally. He is also Deputy-Collector of land revenue in the 'Old Town'; and in this respect is subordinate to the Collector of the Twenty-four Parganas, whose ordinary jurisdiction extends over the 'Added Area' in all revenue matters except excise. There is a separate Collector of income-tax in the 'Old Town.'

The stamp revenue of Calcutta has risen from 23 lakhs in 1892-3 to 29·7 lakhs in 1903-4, when 14·2 lakhs was realized from judicial and 15·5 lakhs from non-judicial stamps. During the same period the income-tax receipts rose from 17·22 to 25·4 lakhs, in spite of the exclusion from assessment

in 1903 of incomes below Rs. 1,000; and the excise receipts rose from 25 to 33·3 lakhs. The main items under the latter head are imported liquor (1·5 lakhs), country spirit (19·4 lakhs), opium (4·9 lakhs), hemp drugs (4·3 lakhs), rum (2·3 lakhs), and *tāri* (Rs. 79,000).

Land revenue. In the 'Old Town' there is, strictly speaking, no land revenue, as in 1758 the East India Company obtained from the Nawāb a free grant of the area on which Calcutta now stands. The so-called revenue is really ground-rent, which has been permanently fixed and amounts to Rs. 18,163. The 'Added Area' belongs for revenue purposes to the District of the Twenty-four Parganas. The tract east of Tolly's Nullah and the Lower Circular Road, which comprises Bhawānīpur, Ballygunge, and Intally, is included in the PANCHĀNNAGRĀM Government estate. West of Tolly's Nullah are ordinary permanently settled estates belonging to private owners; a considerable area is, however, included in the Sāhibān Bāgīcha Government estate (*see* TWENTY-FOUR PARGANAS).

Customs. The grand total realized by the Customs department in 1903-4 was 388 lakhs, to which salt contributed 197 lakhs; cotton piece-goods, 49½ lakhs; mineral oil, 17½ lakhs; liquor, 22¼ lakhs; articles of food and drink, 12¼ lakhs; countervailing duties on sugar, ⅓ lakh; and arms and ammunition, 1¾ lakhs. The export duty on rice amounted to 15¼ lakhs. Besides this, 26⅓ lakhs was paid into District treasuries on account of salt imported into Calcutta.

Municipal government. The municipal administration of the city, as regulated by Bengal Act III of 1899, is in the hands of three co-ordinate authorities, the Corporation, the General Committee, and the Chairman. The Corporation consists of the Chairman appointed by Government, and 50 commissioners, of whom 25 are elected at ward elections, and the remainder are appointed as follows: namely, 4 by the Bengal Chamber of Commerce, 4 by the Calcutta Trades Association, 2 by the Port Commissioners, and 15 by the Local Government. The General Committee consists of 12 commissioners and the Chairman, who is president. Of the commissioners 4 are elected by the ward commissioners, 4 by the appointed commissioners, and the remaining 4 are appointed by the Local Government. The entire executive power is vested in the Chairman, to be exercised subject to the approval or sanction of the Corporation or General Committee, whenever this is expressly directed in the Act. To the Corporation

are reserved the right of fixing the rates of taxation and all those general functions which can be efficiently performed by a large body. The General Committee stands between the deliberative and executive authorities, and deals with those matters which are ill adapted for discussion by the whole Corporation, but yet are too important to be left to the disposal of the Chairman alone.

The Corporation thus constituted commenced work in April, 1900; and its efforts so far have been mainly directed to the introduction of a continuous water-supply for the whole city, the completion of the drainage scheme, the decentralization of control, and the punctual collection of the rates. The city has been divided into four districts, each with its own staff for conservancy, roads, and buildings. A large scheme for opening out the congested areas, with the assistance of Imperial funds, is under consideration.

Water-supply.

The drinking-water supply is obtained from the Hooghly river at Paltā, 17 miles north of Calcutta, where it is pumped up into settling tanks and filtered. The pure water is conveyed by gravitation through two iron mains to a masonry reservoir at the north end of the city. Thence it is pumped into the distributing mains and three other reservoirs in different quarters of the city, and from these it is again pumped into the distributing pipes. The scheme was inaugurated in 1860, and it was then intended to supply 6,000,000 gallons per diem, or 15 gallons per head. In recent years the works have been greatly extended, and the Corporation has now three pumping stations at Paltā and four in the city; there are 1,997 standposts and 5,904 ground hydrants, and the number of filtered water connexions exceeds 26,000. These give to Calcutta and the adjacent towns of Barrackpore, Dum-Dum, Cossipore-Chitpur, Māniktala, and Garden Reach a daily supply of over 7,624,000,000 gallons of filtered water, or 21½ gallons per head. The streets are watered and the drains flushed with unfiltered water pumped up in Calcutta, and for these purposes there are more than 3,500 connexions. The initial cost of the works was 7 lakhs. Subsequent extensions have increased the capital cost to 210 lakhs; the annual cost of maintenance is 16¾ lakhs.

Drainage.

The scheme of underground drainage, by which the city is freed of surplus water and of the filth which water will carry, was inaugurated half a century ago. The drainage is carried eastwards by a series of five parallel conduits which discharge into an intercepting sewer, and thence into a large

well at Tengrā in the eastern suburbs. There it is raised by steam pumps into a high-level sewer, which carries it to the SALT-WATER LAKE, east of the city, there to undergo oxidation. The original project was commenced in 1859, and took sixteen years to complete; but meanwhile fresh additions had been found necessary, and these are still incomplete so far as the 'Added Area' is concerned. The execution of the original scheme proved a very expensive undertaking and cost the municipality 95 lakhs, including a storm-water cut completed in 1883-4. The annual cost of maintenance amounts to Rs. 26,000.

Miscellaneous. Good progress has been made in lighting the city, especially in the southern area; oil lamps are being gradually replaced by gas; and the incandescent system has been extended throughout Calcutta. The Corporation have now 11,000 street lamps, of which 8,500 are gas lamps. A municipal railway conveys street refuse to the Salt-Water Lake.

Finance. The income of the Corporation has increased largely in recent years, but its expenditure has grown even more rapidly, and its indebtedness on March 31, 1904, was nearly 327 lakhs, of which 179½ lakhs has been borrowed during the last decade. The chief item of receipt is the consolidated rate, which during the last ten years has varied from 32 to 42 lakhs per annum. Next in importance are the licence tax on trades and professions, and the tax on animals and vehicles. The municipal market has also proved a source of profit to the Corporation. The average receipts and expenditure during the ten years ending 1903-4 are shown on the next page, in thousands of rupees.

Public buildings. Calcutta possesses many fine buildings, both public and private. The original Government House occupied the site of the modern Customs Office. The erection of the present building was commenced in 1797 at the instance of the Marquis Wellesley, who urged that 'India should be governed from a palace, not from a counting-house.' It was completed in about seven years at a cost of 13 lakhs. The design was based on that of Kedleston Hall in Derbyshire, the structure consisting of four great wings running to each point of the compass from a central pile approached by a magnificent flight of steps on the north. The Grand Hall is an exceptionally fine chamber, and the building also contains the Council Chamber in which the Supreme Legislature holds its sittings. Various articles of furniture and trophies recall the perilous early days of the Company, having been captured

from European or native powers. The two fine full-length portraits of Louis le Bien Aimé and his Queen, together with the chandeliers and twelve busts of the Caesars in the aisles of the Marble Hall, are said to have been taken from a French ship.

Receipts.		*Expenditure.*	
Rates and taxes	46,52	General administration	5,62
Realization under special Acts	46	Fire	55
Other revenue apart from taxation	4,54	Lighting	4,50
Grants from Government	52	Water-supply	7,88
Other contributions	9	Drainage	7,55
Miscellaneous receipts, including sale of water	2,34	Public works	9,77
Loans	19,37	Markets	98
Realization from sinking funds for repayment of loans	1,05	Hospitals	52
Advances	7,20	Conservancy	11,90
Deposits	7,21	Registration of births and deaths	14
		Grants to public institutions	13
		Contribution for general purposes	3
		Interest on loans	11,83
		Miscellaneous	3,52
		Repayment of loans and contribution to sinking funds	8,56
		Advances	7,12
		Deposits	6,92
Total	89,30	Total	87,52

Belvedere, in Alipore, is the official residence of the Lieutenant-Governor of Bengal. Formerly a country-house of Warren Hastings, it was purchased in 1854 for the residence of Sir Frederick Halliday, the first Lieutenant-Governor of Bengal. It is a handsome edifice, and stands in extensive and well-kept grounds. It was greatly improved and embellished by Sir Ashley Eden. At the spot which is now the west entrance of Belvedere, on the Alipore Road, was fought the famous duel between Warren Hastings and Philip Francis, in which the latter was wounded. Not far from this spot is Hastings House, the favourite residence of the great Governor-General, which is now used as a guesthouse for Native chiefs.

To the west of Government House, and nearer to the river, stands the High Court. This imposing structure in somewhat florid Gothic was completed in 1872, on the site of the old Supreme Court. The design is said to have been suggested by the Town Hall at Ypres. The Town Hall stands west of Government House, between it and the High Court. It is

a large building in the Doric style, approached by a noble flight of steps leading up to the grand portico. It was built in 1804 at a cost of about 7 lakhs, and contains many interesting statues and portraits. The Indian Museum, situated in Chowringhee, contains a fine collection of fossils and minerals, a geological gallery, and a gallery of antiquities. Adjoining it are the Economic Museum and the School of Art. The Mint in the north of the city covers 18½ acres, and was built in 1824–30. The style is Doric, the central portico being a copy in half size of the Parthenon at Athens. The Victoria Memorial Hall, which it is proposed to erect in memory of the late Queen-Empress, is now in course of construction at the south end of the Maidān near the Cathedral.

The General Post Office, opened in 1870, occupies a position in Dalhousie Square on the site of the old Fort. In the same square are Writers' Buildings, now used for the offices of the Bengal Secretariat, the Central Telegraph Office, the Currency Office, and the offices of the Commissioner of the Presidency Division and the Collector of Calcutta. The offices of the Secretariat of the Government of India and the Treasury lie between Government House and the Town Hall, and the Foreign and Military Departments have recently transferred their offices to a handsome new building on the Esplanade. The Survey Office occupies substantial quarters in Wood Street. The Bank of Bengal, incorporated as a Presidency Bank by Act XI of 1876, has a fine building in the Strand erected in 1809. Hard by it is the Metcalfe Hall, occupied by the new Imperial Library. The Muhammadan mosques and Hindu temples of Calcutta have no great architectural merit, the only mosque of any pretensions being the one at the corner of Dhurrumtolla Street, which was built and endowed in 1842 by Prince Ghulām Muhammad, son of Tipū Sultān. Kālī Ghāt, in the south of the town, is a place of great sanctity for Hindus, and numbers go there every day to bathe in Tolly's Nullah. The temple, which is said to be about 300 years old, has 194 acres of land assigned for its maintenance.

Churches.

The Cathedral Church of the see of Calcutta, St. Paul's, stands at the south-east corner of the Maidān. It was commenced in 1839 and consecrated in 1847, and it is practically the work of Bishop Wilson. Of the 7½ lakhs raised to build and endow the Cathedral, the Bishop gave 2 lakhs, the East India Company 1½ lakhs, and 2·8 lakhs was subscribed in England; only Rs. 1,20,000 was collected in India. It is

built in a style which is known in Calcutta as Indo-Gothic: that is to say, Gothic adapted by a military engineer to the exigencies of the Indian climate. The building is 247 feet in length with a transept of 114 feet, and the tower and spire are 207 feet high. Among the many monuments to famous Englishmen who have served in this country, the most conspicuous is a life-sized kneeling figure in episcopal robes by Chantrey bearing the single word 'Heber.' The spire was rebuilt in 1897, the original one having been destroyed in the earthquake of that year.

St. John's, the old Cathedral, was commenced in 1784. It was erected to replace the still older Church of St. Anne's, which occupied the site of the modern Bengal Council Chamber and was demolished by Sirāj-ud-daula in 1756. St. John's was built chiefly by voluntary subscriptions, the site being the gift of a Rājā. In the graveyard is the mausoleum which covers the remains of Job Charnock; and slabs commemorating Surgeon William Hamilton, who died in 1717, and Admiral Watson, are built into the walls of the church. The Old Mission Church has a peculiar interest as having been erected between 1767 and 1770 by Kiernander, the first Protestant missionary to Bengal, at his own expense. In 1786 the good Swede found himself unable to defray the charges involved by his benevolent schemes, and the church was seized by the sheriff. It was rescued and restored to religious purposes by Charles Grant, afterwards the well-known East Indian Director, who paid Rs. 10,000, the sum at which it was appraised. Other churches of the Anglican communion are the Fort church of St. Peter, St. Thomas's, St. Stephen's, Kidderpore, and St. James's, besides several others belonging to missionary bodies.

The Roman Catholic Cathedral, situated in the heart of the commercial quarter, was built in 1797, taking the place of a chapel built by the Portuguese in 1700. The Greek church in the same quarter was built by subscriptions in 1780, and the Armenian church was completed in 1790. At the corner of Dalhousie Square, on the site of the old Mayor's Court-house, stands the Scottish church of St. Andrew.

Squares and open spaces.

The Maidān, the chief open space in Calcutta, stretches from Government House and the Eden Gardens on the north to Tolly's Nullah on the south, Chowringhee lying on the east, and the river and Fort on the west. Scattered over it are several monuments, the most conspicuous of them being the Ochterlony column, erected in honour of Sir David Ochterlony,

who, 'for fifty years a soldier, served in every Indian war from the time of Hyder downwards.' It rises 165 feet, with a Saracenic capital, and its summit commands a noble view of the city. Facing the river is a pillared archway erected by the citizens of Calcutta to perpetuate the memory of James Prinsep, founder of the science of Indian numismatics. Near Park Street is the fine bronze statue of Sir James Outram, in which he is represented with drawn sword looking round to his troops and cheering them forward. Among other monuments may be mentioned those of Lord William Bentinck, Lord Hardinge, Lord Mayo, Lord Lawrence, Lord Dufferin, and Lord Lansdowne; and the equestrian statue to Lord Roberts is a noteworthy addition to this group. A statue of Her late Majesty Queen Victoria by Frampton has recently been placed on the Maidān, waiting till it may find a more honoured position in the Hall now being erected to her memory. On the south-west side of the Maidān is the race-course, while the rest of it is devoted to recreation grounds.

Other open spaces are the Eden Gardens, named after the Misses Eden, sisters of Lord Auckland, on the north-west of the Maidān; Dalhousie Square, in the heart of the official quarter; Beadon Square in the north of the city, named after a Lieutenant-Governor of Bengal; and a series of squares by the side of Cornwallis, College, Wellington, and Wellesley Streets. The Zoological Gardens at Alipore were opened by the (then) Prince of Wales in 1876. They are managed by an honorary committee, and are maintained chiefly by donations and subscriptions, entrance receipts, and a Government grant-in-aid. The expenditure in 1903–4 amounted to Rs. 87,000, of which Rs. 42,000 was spent on new buildings. The Government of India has made a grant of a lakh of rupees, which it has been decided to devote mainly to permanent improvements. The gardens contained, in 1904, 464 mammals, 842 birds, and 238 reptiles.

At Sibpur, on the opposite bank of the Hooghly, are situated the Botanical Gardens, which are beautifully laid out along the river and are stocked with rare tropical plants. They were founded in 1786, at the instance of Colonel Alexander Kyd, for the collection of plants indigenous to the country and for the introduction and acclimatization of plants from foreign parts. This object has been fully realized, and among the greatest triumphs of the gardens may be mentioned the introduction of the tea plant from China. They cover 272 acres, and contain a fine herbarium, a botanical library, and

monuments to the first two Superintendents, Kyd and Roxburgh.

Fort William is included in the Lucknow division of the Northern Command. The garrison consists of a battalion of British infantry, a battery of garrison artillery, a company of the Indian submarine mining corps, and a regiment of Native infantry in the Fort, and half a squadron of Native cavalry and a regiment of Native infantry at Alipore. The volunteer forces are: (1) the Calcutta Port Defence Volunteers, in five companies, two being naval divisions, one of garrison artillery, one of submarine miners, and one of electrical engineers, with a strength in 1903-4 of 333; (2) the Calcutta Light Horse, in five troops, strength 187; (3) the Cossipore Artillery, with four six-gun batteries, strength 428; (4) the Calcutta Volunteer Rifles, with three battalions (of which the third is a cadet company), and a strength of 2,075, including cadets and reservists; and (5) the Eastern Bengal State Railway Volunteers, strength 728. The military authorities have control over the erection of buildings on the Maidān and in the Hastings ward, which lies to the south of Fort William. Army.

The Calcutta police force is under a Commissioner, a Deputy-Commissioner, and an Additional Deputy-Commissioner, and consists of 8 Superintendents, 55 inspectors, 74 sub-inspectors and European constables, 291 head constables and sergeants, including mounted men, 2,484 foot constables, and 130 river constables. It has under its control, besides the municipal area, the suburban municipalities of Cossipore-Chitpur, Māniktala, part of Garden Reach, and the river. There are 18 police stations in the 'Old Town' and 14 in the 'Added Area' and in the suburbs. The total cost of the force in 1901 was 8·66 lakhs, of which 8·15 lakhs was paid from Imperial and Provincial revenues, and the rest by local bodies and private individuals for services rendered. The proportion of police to population was 1 to 405 persons, and to area 76 per square mile. Besides ordinary police duties, the Commissioner is responsible for the working of the Arms Act and the fire brigade. The latter consists of one chief engineer, 4 engineers, one European and 4 native drivers, 3 firemen, 16 *tindals*, 84 *khalāsis*, and one inspector of warehouses. The force is equipped with six steam engines and six manual engines, and is paid for partly by fees levied on jute and other warehouses and partly by certain municipalities. The number of fires reported in 1903 in the city and suburbs, including Howrah, was 120, of which only seven were serious. The Police.

Port Commissioners maintain their own boats and staff for fires on the river.

Until 1845, there does not appear to have been any disciplined force, the only police being a number of *thānādārs* and peons for night duty; but in that year the town was divided into three police divisions, each containing a police station with six sub-stations. In 1852 the number of divisions was reduced to two, and in 1877 the present divisions and *thānas* were created. By Act XIII of 1856 a Commissioner of Police was appointed, and in 1868 the detective branch was constituted. In 1867 the suburban police was made over to the Commissioner's control, Bengal Act II of 1866 having been passed for the purpose. Until 1889 the Chairman of the Calcutta Corporation was also Commissioner of Police, but in that year the appointments were separated.

Jails. The Presidency jail on the south of the Maidān contains accommodation for 70 European and 1,214 native prisoners, the average number of prisoners during the year 1903 being 1,209. The chief industry is the printing of Government forms, and the printing work done during 1903 was valued at 1·77 lakhs; minor industries are the manufacture of mustard oil, wheat-grinding, and carpentry. It is intended to transfer this jail to Alipore, where new buildings are being erected for the purpose. There are also a Central and District jail and a Reformatory School at Alipore, and a Criminal Lunatic Asylum at Dullunda.

Education. At the Census of 1901, 24·8 per cent. of the total population (20·9 males and 3·8 females) were returned as literate. The percentage for Christians was 75·9, for Hindus 26·5, and for Muhammadans 12·2.

The University of Calcutta exercises, by means of the examinations for its degrees, paramount influence over English education throughout Bengal. The University building, situated in College Street, contains a library adorned with portraits of some of the more famous persons who have been at various times connected with the University.

The higher colleges in Calcutta are the Presidency, the Doveton, La Martinière, the Free Church Institution and Duff College, the London Missionary Society's Institution, the Sanskrit College, Bishop's College, St. Xavier's, the General Assembly's Institution, the Metropolitan Institution, the City, Ripon, Central, and Bangabāsī Colleges for men, and the Bethune College for women. Of these, the Presidency, the Sanskrit, and the Bethune Colleges are Government institu-

tions. The first was established in 1855 and the second as early as 1824; the third was founded in 1849 by Mr. Bethune, and maintained by him till his death in 1851. It was then maintained by Lord Dalhousie until 1856, and from that date by the Government. The Doveton College was first opened in 1823 for the education of Christian boys under the name of the Parental Academic Institution; but it was subsequently called after Captain J. Doveton, who gave it an endowment of 2·3 lakhs. La Martinière was founded under the will of General Claud Martin, and opened in 1836. Bishop's College was founded by Bishop Middleton in 1820, and was at first located at Sibpur on the site now occupied by the Civil Engineering College. The College of the Scottish Church was founded in 1830, and St. Xavier's in 1860. The second-grade colleges are the Madrasa, the Albert College, the Armenian College, and the Church Missionary College. The Madrasa (for Muhammadans) was founded and endowed by Warren Hastings in 1781; in 1873 it received additional funds from the Hooghly Muhammadan Educational Endowment, and it is also assisted by Government. The Armenian College was opened in 1821, and is managed by trustees. The Sibpur College for Engineering (*see* HOWRAH TOWN), situated on the opposite bank of the Hooghly, was opened by Government in 1880.

Calcutta contains 75 schools teaching up to the standard for the entrance examination of the University, and a large number of primary schools. The oldest Christian school is the Calcutta Free School, which was founded in 1789 from the united funds of the Old Calcutta Charity and the Free School Society, which then amounted to 3 lakhs.

The Calcutta Medical College is a Government institution, which was opened in 1835 and had 519 pupils in 1903–4; there are also four private medical schools with 454 pupils. Of the latter the oldest is the Calcutta Medical School, to which the Albert Victor Hospital has lately been attached.

The two most important hostels under Government management are the Eden Hindu hostel and the Elliott Madrasa hostel. The former is intended chiefly for the accommodation of such Hindu pupils of the Presidency College and of the Hindu and Hare Schools as do not live with their parents or guardians; the latter is for Muhammadans studying at the Calcutta Madrasa. In 1903–4 the number of inmates in the Eden hostel was 247 and in the Elliott hostel 222. The total expenditure of the former amounted to Rs. 30,000, and that of the latter, exclusive of messing charges, to Rs. 4,500. Of

this Government paid Rs. 700 and Rs. 1,400 respectively, chiefly for medical attendance and superintendence. The average cost of a student was Rs. 10 per month per head in the former, and a little over Rs. 3 in the latter.

The Government School of Art attached to the Government Art Gallery was attended by 241 pupils in 1903–4. An aided industrial school was attended by 47 pupils, and 3 unaided schools of Art taught 182 pupils. Besides, there are two schools for the blind and a deaf and dumb school. There were four training schools for mistresses in 1900–1, and one Normal school for the training of schoolmasters. In addition to the Bethune College, there were six other higher-class female institutions in Calcutta.

The total number of pupils under instruction increased from 25,124 in 1883 to 40,724 in 1892–3 and 43,979 in 1900–1, while 39,524 boys and 8,277 girls were at school in 1903–4, being respectively 46·8 and 19·3 per cent. of the total of school-going age. The number of educational institutions, public and private, in that year was 531: namely, 20 Arts colleges, 69 secondary, 311 primary, and 131 special schools. The expenditure on education was 18·06 lakhs, of which 6·22 lakhs was met from Provincial funds, Rs. 11,000 from municipal funds, and 8·16 lakhs from fees.

News-papers and periodicals.

Calcutta has four daily newspapers owned and edited by Englishmen: namely, the *Englishman*, the *Indian Daily News*, the *Statesman*, and the *Empire*, the latter being an evening newspaper which has recently (1906) been started. The other journals and magazines under European management include a fortnightly illustrated paper, a weekly paper dealing with finance and commerce, an illustrated engineering journal, and three weekly papers devoted to sport. Other periodicals deal with religious subjects, the interests of planters and volunteers, medicine, railways, horticulture, and literary and general matters. One of the latter, the *Calcutta Review*, is an old-established publication of some repute. There are also four daily newspapers published in English but owned and edited by natives: namely, the *Bengalee*, *Amrita Bazar Patrikā*, *Indian Mirror*, and *Hindoo Patriot*. No less than twenty-three vernacular papers are published in Calcutta, but few of these are daily journals of of any great importance; the most influential are the *Hitabādi*, the *Basumatī*, and the *Bangabāsī*, all weekly papers.

Medical.

The chief hospitals are the Medical College, Eden, Ezra, Syāma Charan Law Eye, Presidency General, Campbell,

Police, Sambhu Nāth Pandit, and Dufferin Victoria Hospitals, the Mayo Native Hospital with three dispensaries and the Chandney Hospital attached to it, and the Kidderpore Municipal and Dockyard Dispensaries. Of these, the Dufferin Victoria Hospital and the Eden Hospital are for women only. The Medical College Hospital was originally started in 1838 with thirty beds. It was very largely attended and, the accommodation having soon been found quite insufficient, an enlarged building was opened on the present site in 1852. The Eden or lying-in Hospital, the Ezra Hospital for Jews, and the Eye Infirmary were subsequently added to it. The Presidency General Hospital for Europeans dates from about the middle of the eighteenth century. The central block was purchased by Government in 1768, and two wings were added in 1795. The foundation stone of a new block was laid in 1898. This is one of the best hospitals in India; it contains accommodation for 233 patients, and has been provided with all modern requirements and conveniences. The Campbell Hospital, started in 1867, is the largest hospital in India and has accommodation for 752 patients. The Police Hospital, with 211 beds, was opened in 1865 for the treatment of the members of the Calcutta police. The Mayo Native Hospital, the successor of the old Chandney Hospital, contains 105 beds and was opened in 1874. The total number of patients treated in these institutions during 1903 was 273,000, of whom 25,000 were in- and 248,000 out-patients. Of these, 163,000 were men, 51,000 women, and 59,000 children. These charities are mainly dependent on Government for their support. In 1903, out of a total income of 9·15 lakhs, Government gave 6·39 lakhs; 1 lakh was supplied from Local funds; the Corporation contributed Rs. 46,000; interest on investments amounted to Rs. 25,000; while only Rs. 7,000 was subscribed, the balance being made up by fees from paying patients. There are also two lunatic asylums entirely under Government control, while a leper asylum has lately been erected.

Vaccination is compulsory, and is controlled by the Health department of the Corporation. In 1903–4 the number of persons successfully vaccinated was 22,492. Vaccination.

[*Census Reports*; H. E. Busteed, *Echoes from Old Calcutta* (fourth edition, 1908); R. B. Hyde, *Parochial Annals of Bengal* (Calcutta, 1901); A. K. Ray, *A Short History of Calcutta* (Calcutta, 1902); S. C. Hill, *Bengal in* 1756–7 (1905); C. R. Wilson, *Old Fort William in Bengal* (1906); H. E. A. Cotton, *Calcutta Old and New* (Calcutta, 1907).]

Boundaries, configuration, and river system.

Nadiā District.—District in the Presidency Division, Bengal, lying between 22° 53′ and 24° 11′ N. and 88° 9′ and 89° 22′ E., with an area of 2,793 square miles. It is bounded on the west by the Bhāgīrathi or Hooghly river; on the south by the Twenty-four Parganas; on the north the Jalangī river separates it from Murshidābād, and the Padmā or main channel of the Ganges from Rājshāhi and Pābna; Farīdpur and Jessore Districts form the eastern boundary.

Nadiā is situated at the head of the Gangetic delta, and its alluvial surface, though still liable in parts to inundation, has been raised by ancient deposits of silt above the normal flood-level; its soil is agriculturally classed as high land, and bears cold-season crops as well as rice. The rivers have now ceased their work of land-making and are beginning to silt up. The general aspect is that of a vast level alluvial plain, dotted with villages and clusters of trees, and intersected by numerous rivers, backwaters, minor streams, and swamps. In the west of the District is the Kālāntar, a low-lying tract of black clay soil which stretches from the adjoining part of Murshidābād through the Kālīganj and Tehāta *thānas*.

Along the northern boundary flows the wide stream of the PADMĀ. This is now the main channel of the Ganges, which has taken this course in comparatively recent times; it originally flowed down the Bhāgīrathi, still the sacred river in the estimation of Hindus, and it afterwards probably followed in turn the course of the Jalangī and the Mātābhānga before it eventually took its present direction, flowing almost due east to meet the Brahmaputra near Goalundo. The rivers which intersect the District are thus either old beds of the Ganges or earlier streams, like the Bhairab, which carried the drainage of the Darjeeling Himālayas direct to the sea before the Padmā broke eastwards and cut them in halves. The whole District is a network of moribund rivers and streams; but the BHĀGĪRATHI, the JALANGĪ, and the MĀTĀBHĀNGA are the three which are called distinctively the 'NADIĀ RIVERS.' The Jalangī flows past the head-quarters station of Krishnagar, and falls into the Bhāgīrathi opposite the old town of Nadiā. Its chief distributary is the Bhairab. The Mātābhānga, after throwing off the Pāngāsi, Kumār, and Kabadak, bifurcates near Krishnaganj into the Churnī and Ichāmatī, and thereafter loses its own name. Marshes abound.

Geology.

The surface consists of sandy clay and sand along the course of the rivers, and fine silt consolidating into clay in the flatter parts of the plain.

The swamps afford a foothold for numerous marsh species, while the ponds and ditches are filled with submerged and floating water-plants. The edges of sluggish creeks are lined with large sedges and bulrushes, and the banks of rivers have a hedge-like shrub jungle. Deserted or uncultivated homestead lands are densely covered with shrubberies of semi-spontaneous species, interspersed with clumps of planted bamboos and groves of *Areca*, *Moringa*, *Mangifera*, and *Anona*; and the slopes of embankments are often well wooded. **Botany.**

Wild hog are plentiful, and snipe abound in the swamps. There are still a few leopards, and wild duck are found in the *jhīls* near the Padmā. Snakes are common and account for about 400 deaths annually; about 90 more are caused by wild animals. **Fauna.**

The mean temperature for the year is 79°, ranging between 69° and 88°. The mean minimum varies from 52° in January to 79° in June, and the mean maximum from 77° in December to 97° in May. The average humidity is 79 per cent. of saturation, varying from 71 per cent. in March to 87 per cent. in August. The annual rainfall averages 57 inches, of which 6·5 inches fall in May, 9·7 in June, 10·5 in July, 11·3 in August, 8·1 in September, and 4·1 in October. **Temperature and rainfall.**

Floods occur frequently and cause much damage; the area especially liable to injury is a low-lying strip of land, about 10 miles wide, running in a south-easterly direction across the centre of the District. It is said that this is swept by the floods of the Bhāgīrathi whenever the great Lalitākuri embankment in Murshidābād District gives way, but it is on record that the breaking of this embankment has not always been followed by a rise of the flood-level in Nadiā. **Floods.**

The town of Nadiā or NADADWĪP (meaning 'new island'), from which the District takes its name, has a very ancient history, and about the time of William the Conqueror the capital of the Sen kings of Bengal was transferred thither from Gaur. In 1203 Lakshman Sen, the last of the dynasty, was overthrown by the Muhammadan freebooter Muhammad-i-Bakhtyār Khiljī, who took the capital by surprise and subsequently conquered the greater part of Bengal proper. No reliable information is on record about the District until 1582, when the greater part of it was included at Todar Mal's settlement in *sarkār* Sātgaon, so called from the old trade emporium of that name near the modern town of Hooghly. At that time it was thinly inhabited, but its *pandits* were con- **History.**

spicuous for their learning. The present Mahārājā of Nadiā is a Brāhman and has no connexion with Lakshman Sen's dynasty; his family, however, claims to be of great antiquity, tracing its descent in a direct line from Bhattanārāyan, the chief of the five Brāhmans who were imported from Kanauj, in the ninth century, by Adisur, king of Bengal. At the end of the sixteenth century a Rājā of this family assisted the Mughal general, Mān Singh, in his expedition against Pratāpāditya, the rebellious Rājā of Jessore, and subsequently obtained a grant of fourteen *parganas* from Jahāngīr as a reward for his services. The family appears to have reached the zenith of its power and influence in the middle of the eighteenth century, when Mahārājā Krishna Chandra took the side of the English in the Plassey campaign, and received from Clive the title of Rājendra Bahādur and a present of 12 guns used at Plassey, some of which are still to be seen in the Mahārājā's palace.

Indigo riots.

Nadiā District was the principal scene of the indigo riots of 1860, which occasioned so much excitement throughout Bengal proper. The native landowners had always been jealous of the influence of the European planters, but the real cause of the outbreak was the fact that the cultivators realized that at the prices then ruling it would pay them better to grow oilseeds and cereals than indigo. Their discontent was fanned by interested agitators, and at last they refused to grow indigo. The endeavours made by the planters to compel them to do so led to serious rioting, which was not suppressed until the troops had been called out. A commission was appointed to inquire into the relations between the planters and the cultivators, and matters gradually settled down; but a fatal blow had been dealt to indigo cultivation in the District, from which it never altogether recovered. Several factories survived the agitation, and some still continue to work; but the competition of synthetic indigo has reduced the price of the natural dye to such an extent that the proprietors are finding it more profitable to give up indigo and to manage their estates as ordinary *zamīndāris*.

The people.

The population of the present area increased from 1,500,397 in 1872 to 1,662,795 in 1881. Since that date it has been almost stationary, having fallen to 1,644,108 in 1891, and risen again to 1,667,491 in 1901. From 1857 to 1864 the District was scourged by the 'Nadiā fever,' which caused a fearful mortality, especially in the old jungle-surrounded and tank-infested villages of the Rānāghāt subdivision. There are no

statistics to show the actual loss of life, but it is known that in some parts whole villages were depopulated. There was a recrudescence of the disease in 1881–6, which caused the loss of population recorded at the Census of 1891. Nadiā is still one of the most unhealthy parts of Bengal, and in 1902 the deaths ascribed to fevers amounted to no less than 41 per 1,000 of the population. In 1881 a special commission ascribed the repeated outbreaks of malaria to the silting up of the rivers, which had become 'chains of stagnant pools and hotbeds of pestilence in the dry season.' Fevers accounted for no less than 82 per cent. of the deaths in 1901, as compared with the Provincial average of 70 per cent. Cholera comes next, and is responsible for 4 per cent. of the mortality.

The principal statistics of the Census of 1901 are shown below:—

Subdivision.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Krishnagar	701	2	740	361,333	515	+ 3·5	29,784
Rānāghāt	427	4	568	217,077	508	− 5·6	16,706
Kushtia	596	2	1,011	486,368	816	+ 0·7	22,743
Meherpur	632	1	607	348,124	551	+ 3·4	13,875
Chuādānga	437	...	485	254,589	583	+ 3·7	10,267
District total	2,793	9	3,411	1,667,491	597	+ 1·4	93,375

The principal towns are KRISHNAGAR, the head-quarters, SĀNTIPUR, NABADWĪP or Nadiā, KUSHTIA, RĀNĀGHĀT, and MEHERPUR. The Kushtia subdivision is by far the most populous portion of the District. The low density elsewhere is due to the silting up of the rivers, which has obstructed the drainage and caused long-continued unhealthiness. The soil also has lost much of its fertility, now that it is no longer enriched by annual deposits of silt. The material condition of the District is less satisfactory than that of its neighbours, and since 1891 it has lost 65,000 persons by emigration, chiefly to the adjoining Districts and to Calcutta. Owing to this cause, it contains 1,015 females to every 1,000 males. The prevalent language is Bengali, which is spoken with remarkable purity by the educated classes. Muhammadans number 982,987, or 59 per cent. of the population, and Hindus 676,391, or 40·6 per cent.; the preponderance of the former is most marked in the eastern part of the District, and especially in the Kushtia subdivision. It is a curious circumstance

that, whereas Muhammadans form the majority of the whole population, they are in a very considerable minority in the towns, where they only form 26·3 per cent. of the total. Of the Muhammadans, large numbers belong to the puritanic sect of Farāzis or Wahhābis; and the fanatic leader, Titu Miān, an account of whose rebellion in 1831 will be found in the article on the TWENTY-FOUR PARGANAS, recruited many of his followers in Nadiā.

Castes and occupations.

The Kaibarttas (111,000), the great race caste of Midnapore, are by far the most numerous caste in the District, and they are followed by the Goālās (cowherds), who number 71,000. The Brāhmans (47,000) are to a great extent the descendants of settlers in the time of the Sen kings. Next in numerical importance come the low-caste Bāgdis, Muchis, and Chandāls. Kāyasths number 31,000, and there are 26,000 Mālos or boatmen. Of every 100 persons in the District, 56 are engaged in agriculture, 16 in industry, one in commerce, 2 in one or other of the professions, and 17 in general labour. This District was the birthplace, in 1485, of the great religious reformer Chaitanya, who founded the modern Vaishnava sect of Bengal. He was opposed to caste distinctions, and inveighed against animal sacrifices and the use of animal food and stimulants, and taught that the true road to salvation lay in *bhakti* or devotion to God. A favourite form of worship with this sect is the *sankīrtan*, or hymn-singing procession, which has gained greatly in popularity of late years. The town of Sāntipur, in the Rānāghāt subdivision, is held sacred as the residence of the descendants of Adwaita, one of the two first disciples of Chaitanya. Most of his followers, while accepting his religious views, maintain their original caste distinctions, but a small minority abandoned them and agreed to admit to their community recruits from all castes and religions. These persons are known as Baishnabs or Bairāgis. At the present day most of their new adherents join them because they have been turned out of their own castes, or on account of love intrigues or other sordid motives; and they hold a very low position in popular estimation. A large proportion of the men live by begging, and many of the women by prostitution.

Among the latter-day offshoots of Chaitanya's teaching, one of the most interesting is the sect of Kartābhajās, the worshippers of the Kartā or 'headman.' The founder of the sect was a Sadgop by caste, named Rām Saram Pāl, generally known as Kartā Bābā, who was born about two centuries ago near Chākdaha in this District, and died at Ghoshpāra. This sect

accepts recruits from all castes and religions, and its votaries assemble periodically at Ghoshpāra to pay homage to their spiritual head.

Christian missions.

Christians number 8,091, of whom 7,912 are natives. The Church of England possesses 5,836 adherents, and the Roman Catholic Church 2,172. The Church Missionary Society commenced work in 1831, and has 13 centres presided over by native clergy or catechists, and superintended by 6 or 7 Europeans. The Roman Catholic Mission was established in 1855, and Krishnagar is now the head-quarters of the diocese of Central Bengal. In 1877 there was a schism among the adherents of the Church Missionary Society, and a number of them went over to the Church of Rome. The Church of England Zanāna Mission works at Krishnagar and at Ratanpur, and a Medical mission at Rānāghāt.

General agricultural conditions and principal crops.

We have already seen that Nadiā is not a fertile District. In most parts the soil is sandy, and will not retain the water necessary for the cultivation of winter rice, which is grown only in the Kālāntar and parts of the Kushtia subdivision, occupying but one-ninth of the gross cropped area. The land has often to be left fallow to enable it to recover some degree of fertility. A very large number of the cultivators are mere tenants-at-will and have little inducement to improve their fields, and the repeated outbreaks of malaria have deprived them of vitality and energy. The dead level of the surface affords little opportunity for irrigation, which is rarely attempted. The total area under cultivation in 1903–4 was 901 square miles, the land classed as cultivable waste amounting to 544 square miles. Separate statistics for the subdivisions are not available.

The staple crop is rice, grown on 775 square miles, or 86 per cent. of the net cropped area. The autumn crop is the most important; it occupies about 607 square miles and is usually reaped in August and September, but there is a late variety which is harvested about two months later. The winter crop is reaped in December, and the spring rice in March or April. The winter and spring crops are transplanted, but the autumn rice is generally sown broadcast. After rice, the most important crops are gram and other pulses, linseed, rape and mustard, jute, wheat, indigo, and sugar-cane. The cultivation of indigo is contracting, and only 6,300 acres were sown in 1903–4. After the autumn rice is harvested, cold-season crops of pulses, oilseeds, and wheat are grown on the same fields, and 79 per cent. of the cultivated

area grows two crops. The rice grown in the District is insufficient to satisfy the local demand. In some parts, especially in the subdivision of Chuādānga, the cultivation of chillies (*Capsicum frutescens*) and turmeric forms an important feature in the rural industry, upon which the peasant relies to pay his rent.

Improvements in agricultural practice.

Cultivation is extending, but no improvement has taken place in agricultural methods. The manuring practised is insufficient to restore to the soil what the crops take from it, and it is steadily deteriorating. Very little advantage has been taken of the Land Improvement and Agriculturists' Loans Acts.

Cattle.

The local cattle are very inferior; the pasturage is bad, and no care is taken to improve the breeds by selection or otherwise.

Arts and manufactures.

Sāntipur was once famous for its weavers, and in the beginning of the nineteenth century the agent of the East India Company used to purchase muslins to the annual value of £150,000. The industry, however, has almost died out. Very little muslin is now exported, and even the weaving of ordinary cotton cloth is on the decline. Sugar-refining by European methods has proved unsuccessful, but there are several date-sugar refineries in native hands at Sāntipur, Munshiganj, and Alamdānga. Brass-ware is manufactured, particularly at Nabadwīp and Meherpur, and clay figures are moulded at Krishnagar; the latter find a ready sale outside the District and have met with recognition at exhibitions abroad. There is a factory at Kushtia under European management for the manufacture of sugar-cane mills.

Commerce.

Owing to its numerous waterways, the District is very favourably situated for trade. Moreover, the Eastern Bengal State Railway runs through it for a distance of nearly 100 miles. Gram, pulses, jute, linseed, and chillies are exported to Calcutta, and sugar to Eastern Bengal. Coal is imported from Burdwān and Mānbhūm; salt, oil, and piece-goods from Calcutta; and rice and paddy from Burdwān, Dinājpur, Bogra, and Jessore.

The chief railway trade centres are Chuādānga, Bagulā, Rānāghāt, Dāmukdia, and Porādaha; and those for river traffic are Nabadwīp on the Bhāgīrathi, Sāntipur and Chākdaha on the Hooghly, Karīmpur, Andulia, Krishnagar, and Swarūpganj on the Jalangī, Hānskhāli on the Churnī, Boāliā and Krishnaganj on the Mātābhānga, Nonāganj on the Ichāmatī, Alamdānga on the Pāngāsi, and Kushtia, Kumārkhāli, and Khoksā on the

Garai. About thirty-eight fairs are held yearly. Most of them, however, are religious gatherings; the best attended are the fairs held at Nabadwīp in February and November, at Sāntipur in November, at Kuliā in January, and at Ghoshpāra in March.

The Eastern Bengal State Railway (broad gauge) passes through the District from Kānchrāpāra on the southern, to Dāmukdia on the northern boundary; and a branch runs east from Porādaha, through Kushtia, to Goalundo in Farīdpur District. The central section of the same railway runs from Rānāghāt eastwards to Jessore, and a light railway (2 feet 6 inches gauge) from Rānāghāt to Krishnagar via Sāntipur. A new line has recently been constructed from Rānāghāt to Murshidābād. Railways.

The District board maintains 803 miles of roads, in addition to 526 miles of village tracks. Of the roads, 107 miles are metalled, including the roads from Krishnagar to Bagulā and Rānāghāt, from Meherpur to Chuādānga, and several others which serve as feeders to the railway. Of the unmetalled roads, the most important is the road from Bārāsat in the Twenty-four Parganas, through Rānāghāt and Krishnagar, to Plassey in the north-west corner of the District. Roads.

All the rivers are navigable during the rainy season by boats of large burden, but in the dry season they dwindle to shallow streams and are obstructed by sandbanks and bars. Before the era of railways the NADIĀ RIVERS afforded the regular means of communication between the upper valley of the Ganges and the sea-board, and elaborate measures are still adopted to keep their channels open. Steamers ply daily between Calcutta and Kālna via Sāntipur, and on alternate days, during the rains, between Kālna and Murshidābād via Nabadwīp. Numerous steamers pass up and down the Padmā, and a steam ferry crosses that river from Kushtia to Pābna. Water communications.

Nadiā suffered severely in the great famine of 1770. The worst famines of recent times were those of 1866 and 1896. On the former occasion relief from Government and private funds was necessary from April to October; 601,000 persons were gratuitously relieved, and 337,000 were employed on relief works. The famine of 1896 affected about two-fifths of the District, including the Kālāntar and Meherpur subdivisions, and the western portions of the Kushtia and Chuādānga subdivisions. The grant of relief continued from November, 1896, until September, 1897, the total expenditure from public funds being 6¼ lakhs. The daily average number of persons Famine.

employed on relief works was 8,913. In July, 1897, the average on relief works rose to 25,500 persons, and gratuitous relief was afforded daily to an average of 33,000 persons.

District subdivisions and staff.

For administrative purposes Nadiā is divided into five subdivisions, with head-quarters at KRISHNAGAR, KUSHTIA, RĀNĀGHĀT, MEHERPUR, and CHUĀDĀNGA. The District Magistrate is assisted at head-quarters by a staff of five Deputy-Magistrate-Collectors, one of whom is solely employed on land acquisition work. The Meherpur subdivision is in charge of an Assistant-Magistrate-Collector, while the other subdivisional officers are Deputy-Magistrate-Collectors.

Civil and criminal justice.

For the disposal of civil work, the judicial staff subordinate to the District and Sessions Judge consists of a Sub-Judge and two Munsifs at Krishnagar, two Munsifs at Kushtia, and one each at Meherpur, Chuādānga, and Rānāghāt. The criminal courts are those of the District and Sessions Judge, the District Magistrate, four Deputy-Magistrates at Krishnagar, and the subdivisional officers in the other subdivisions. No class of crime is now specially prevalent, but at the beginning of the nineteenth century the District was notorious for dacoity and rioting.

Land revenue.

The current land revenue demand for 1903–4 was 9·1 lakhs, due from 2,492 estates. Of these, 2,216 with a revenue of 8·14 lakhs are permanently settled, 246 estates paying Rs. 73,000 are temporarily settled, and 30 estates paying Rs. 22,000 are managed direct by the Collector. In addition, there are 299 revenue-free estates and 9,169 rent-free lands, which pay road and public works cesses. The gross rental of the District has been returned by the proprietors and tenure-holders at 34 lakhs, and of this sum the Government revenue demand represents 26·7 per cent. The incidence of the land revenue is R. 0–15–3 per acre on the cultivated area.

The *utbandi* tenure is not peculiar to Nadiā, but is especially common in this District, where about 65 per cent. of the cultivated land is held under it. The tenant pays rent only for the land he cultivates each year; and he cannot acquire occupancy rights unless he tills the same land for twelve years consecutively, which in fact he rarely does. Meanwhile the landlord can raise the rent at his pleasure, and if the tenant refuses to pay, he can be ejected. This tenure deprives the tenant of any incentive to improve his lands, and at the same time encourages rack-renting. It appears, however, to be gradually giving way to the ordinary system.

Where the tenants have occupancy rights, the rent of rice land ranges from Rs. 1-4 to Rs. 4-8 an acre; garden land is rented at about Rs. 11 an acre, and land under special crops, such as chillies and sugar-cane, at Rs. 7-8 or even more. Lands leased under the *utbandi* system pay higher rents, as much as Rs. 12 to Rs. 23 being paid per acre, as compared with R. 1 to Rs. 2-9 for similar lands held on long leases.

The following table shows the collections of land revenue and of total revenue (principal heads only), in thousands of rupees :—

	1880-1.*	1890-1.	1900-1.	1903-4.
Land revenue . .	10,98	9,30	9,10	9,04
Total revenue . .	16,68	14,93	16,58	17,10

* In 1880-1 the District included the subdivision of Bangaon, which was subsequently transferred to Jessore.

Outside the nine towns which enjoy municipal government, local affairs are managed by a District board with five subdivisional local boards. The income of the District board in 1903-4 was Rs. 1,89,000, of which Rs. 90,000 was derived from rates; and the expenditure was Rs. 1,42,000, including Rs. 74,000 spent on public works and Rs. 42,000 on education. Local and municipal government.

The District contains 21 police stations and 13 outposts. In 1903 the force at the disposal of the District Superintendent consisted of 5 inspectors, 48 sub-inspectors, 47 head constables, and 627 constables, maintained at a cost of Rs. 1,38,000. There is one policeman to every 5·4 square miles and to 3,231 persons, a much larger proportion than the Provincial average. Besides, there are 3,990 village *chaukīdārs* under 347 *daffadārs*. Police and jails.

The District jail at Krishnagar has accommodation for 216 prisoners, and subsidiary jails at each of the other subdivisional head-quarters for a total of 61.

Nadiā District, in spite of its proximity to Calcutta, is not especially remarkable for the diffusion of the rudiments of learning. In 1901 the proportion of literate persons was 5·6 per cent. (10·4 males and 0·9 females). The total number of pupils under instruction increased from about 20,000 in 1883 to 29,364 in 1892-3 and 31,102 in 1900-1, while 31,573 boys and 3,442 girls were at school in 1903-4, being respectively 25·4 and 2·7 per cent. of the number of school-going age. The number of educational institutions, public and private, in 1903-4 was 1,026: namely, an Arts college, 90 Education.

secondary, 887 primary, and 48 special schools. The expenditure on education was 3·26 lakhs, of which Rs. 62,000 was met from Provincial funds, Rs. 40,000 from District funds, Rs. 3,000 from municipal funds, and 1·37 lakhs from fees. Nadiā has always been famous as a home of Sanskrit learning, and its *tols*, or indigenous Sanskrit schools, deserve special mention. In these *Smriti* (Hindu social and religious law) and *Nyāya* (logic) are taught, many of the pupils being attracted from considerable distances by the fame of these ancient institutions. A valuable report on these *tols*, by the late Professor E. B. Cowell (Calcutta, 1867), contains a full account of the schools, the manner of life of the pupils, and the works studied. Most of the *tols* are in the town of Nabadwīp, but there are a few also in the surrounding villages.

Medical. In 1903 the District contained 13 dispensaries, of which 7 had accommodation for 52 in-patients. The cases of 66,000 out-patients and 646 in-patients were treated during the year, and 2,700 operations were performed. The expenditure was Rs. 21,000, of which Rs. 5,000 was met by Government contributions, Rs. 3,000 from Local and Rs. 10,000 from municipal funds, and Rs. 1,935 from subscriptions. In addition, the Zanāna Mission maintains a hospital and three dispensaries, and large numbers of patients are treated by the doctors of the Rānāghāt Medical Mission.

Vaccination. Vaccination is compulsory only within municipal areas. In 1903-4 the number of persons successfully vaccinated was 50,000, or 33 per 1,000 of the whole population.

[Sir W. W. Hunter's *Statistical Account of Bengal*, vol. ii (1875); Fever Commission's *Report* (Calcutta, 1881).]

Krishnagar Subdivision.—Head-quarters subdivision of Nadiā District, Bengal, lying between 23° 17′ and 23° 49′ N., and 88° 9′ and 88° 48′ E., with an area of 701 square miles. The subdivision consists of a wide alluvial plain, bounded on the west by the Bhāgīrathi and intersected by the Jalangī, which flows past the head-quarters station and then joins the Bhāgīrathi. The population increased from 349,007 in 1891 to 361,333 in 1901, the density being 515 persons per square mile. The subdivision contains two towns, KRISHNAGAR (population, 24,547), the head-quarters of the District and of the subdivision, and NABADWĪP (10,880); and 740 villages. The famous battle-field of PLASSEY lies at the extreme north of the subdivision.

Rānāghāt Subdivision.—Southern subdivision of Nadiā District, Bengal, lying between 22° 53′ and 23° 20′ N. and

88° 20′ and 88° 45′ E., with an area of 427 square miles. The subdivision is a deltaic tract, bounded on the south-west by the Bhāgīrathi; it contains much jungle and numerous marshes and backwaters, and the whole tract is malarious and unhealthy. The population declined from 230,036 in 1891 to 217,077 in 1901, the density in the latter year being 508 persons per square mile; the decrease (5·63 per cent.) was due to the prevalence of malarial affections. The subdivision contains four towns, RĀNĀGHĀT (population, 8,744), the head-quarters, SĀNTIPUR (26,898), CHĀKDAHA (5,482), and BIRNAGAR (3,124); and 568 villages.

Kushtia Subdivision.—North-eastern subdivision of Nadiā District, Bengal, lying between 23° 42′ and 24° 9′ N. and 88° 44′ and 89° 22′ E., with an area of 596 square miles. The subdivision is a wide alluvial plain of great fertility, the northern boundary of which is formed by the Padmā, while the Mātābhānga bounds it on the south-west. The population in 1901 was 486,368, compared with 482,927 in 1891; this is by far the most populous part of the District, the density being 816 persons per square mile. The subdivision contains two towns, KUSHTIA (population, 5,330), the head-quarters, and KUMĀRKHĀLI (4,584); and 1,011 villages.

Meherpur Subdivision.—Northern subdivision of Nadiā District, Bengal, lying between 23° 36′ and 24° 11′ N. and 88° 18′ and 88° 53′ E., with an area of 632 square miles. The subdivision is a deltaic tract, bounded on the north by the Jalangī; a considerable portion consists of a low-lying tract of black clay soil. The population increased from 336,716 in 1891 to 348,124 in 1901, the density being 551 persons per square mile. The subdivision contains the town of MEHERPUR (population, 5,766), the head-quarters; and 607 villages.

Chuādānga Subdivision.—Eastern subdivision of Nadiā District, Bengal, lying between 23° 22′ and 23° 50′ N. and 88° 38′ and 89° 1′ E., with an area of 437 square miles. The subdivision consists of a flat widespread plain intersected by numerous streams, which have now in many instances silted up. The population increased from 245,422 in 1891 to 254,589 in 1901, the density being 583 persons per square mile. The subdivision contains 485 villages, CHUĀDĀNGA being the head-quarters.

Bīrnāgar (or Ula).—Town in the Rānāghāt subdivision of Nadiā District, Bengal, situated in 23° 15′ N. and 88° 34′ E. Population (1901), 3,124. Bīrnāgar was constituted a municipality in 1869. The income during the decade ending 1901–2

averaged Rs. 3,700, and the expenditure Rs. 2,900. In 1903-4 the income was Rs. 3,400, mainly from a tax on persons (or property tax); and the expenditure was Rs. 2,400.

Chākdaha.—Town in the Rānāghāt subdivision of Nadiā District, Bengal, situated in 23° 6′ N. and 88° 33′ E., on the left bank of the Hooghly river. Population (1901), 5,482. Chākdaha was constituted a municipality in 1886. The income and expenditure during the decade ending 1901-2 averaged Rs. 3,800. In 1903-4 the income was Rs. 3,900, mainly derived from a tax on persons (or property tax); and the expenditure was Rs. 4,800. Chākdaha is a centre of the jute trade, but a change in the course of the river has greatly reduced its importance. It was near this place that Kartā Bābā, the founder of the Kartābhajā sect, was born.

Chuādānga Village.—Head-quarters of the subdivision of the same name in Nadiā District, Bengal, situated in 23° 39′ N. and 88° 51′ E., on the left bank of the Mātābhānga river. Population (1901), 3,147. Chuādānga is a station on the Eastern Bengal State Railway, and an important trade centre. It contains the usual public offices; the sub-jail has accommodation for 12 prisoners.

Krishnagar Town.—Head-quarters of Nadiā District, Bengal, situated in 23° 24′ N. and 88° 31′ E., on the left bank of the Jalangī river. Population (1901), 24,547; it has been slowly decreasing since 1872, when it was 26,750, owing to the ravages of fever, for which the town is notorious. Krishnagar is the residence of the Rājās of Nadiā. It is the seat of a considerable trade, and is noted for its manufacture of coloured clay figures. It was constituted a municipality in 1864. The income during the decade ending 1901-2 averaged Rs. 38,000, and the expenditure Rs. 36,000. In 1903-4 the income was Rs. 48,000, chiefly derived from a tax on houses and lands (Rs. 22,000) and a conservancy rate (Rs. 11,000); and the expenditure was Rs. 40,000. The old bed of the Anjonā river has recently been excavated in order to improve the drainage, a loan having been taken from Government for the purpose.

Krishnagar contains the usual public offices. The District jail has accommodation for 216 prisoners, the manufactures being mustard oil, mats, and *surki* or brick-dust. A Government college affiliated to the Calcutta University was attended by a daily average of 66 pupils in 1900-1; the total expenditure was Rs. 28,000. A collegiate school is attached to the college. Since 1881 the attendance at both institutions has

shown a steady increase. Krishnagar is a station of the Church Missionary Society and the head-quarters of the Roman Catholic diocese of Central Bengal, each body having its own church and schools. The Church of England Zanāna Mission maintains two dispensaries, a hospital, and two schools.

Kumārkhāli.—Town in the Kushtia subdivision of Nadiā District, Bengal, situated in 23° 52′ N. and 89° 15′ E., on the left bank of the Garai river. Population (1901), 4,584. It is a station on the Eastern Bengal State Railway, and a considerable trading centre. During the mercantile days of the East India Company, a Commercial Resident was stationed at Kumārkhāli, and a large business in silk was carried on. The only relic of that time is a cemetery, with a few old tombs, the earliest dating from 1790. Kumārkhāli was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 6,000. In 1903–4 the income was Rs. 5,500, half of which was obtained from a tax on persons; and the expenditure was Rs. 5,300.

Kushtia Town.—Head-quarters of the subdivision of the same name in Nadiā District, Bengal, situated in 23° 55′ N. and 89° 9′ E., on the right bank of the Padmā or Ganges. Population (1901), 5,330. It is a thriving trade centre, with a station on the Eastern Bengal State Railway. Kushtia was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 7,000. In 1903–4 the income was Rs. 10,000, including Rs. 3,000 derived from a tax on persons (or property tax), and Rs. 2,500 from a conservancy rate; and the expenditure was Rs. 8,000. The town contains the usual public offices; the sub-jail has accommodation for 24 prisoners.

Meherpur Town (*Mihrpur*).—Head-quarters of the subdivision of the same name in Nadiā District, Bengal, situated in 23° 47′ N. and 88° 38′ E., on the Bhairab river. Population (1901), 5,766. Meherpur was constituted a municipality in 1869. The income during the decade ending 1901–2 averaged Rs. 4,400, and the expenditure Rs. 3,500. In 1903–4 the income was Rs. 3,900, half of which was obtained from a tax on persons; and the expenditure was Rs. 3,800. The town contains the usual public offices; the sub-jail has accommodation for 13 prisoners. The Church Missionary Society has a branch at Meherpur. Good bell-metal ware is manufactured.

Nabadwīp (or Nadiā).—Ancient capital of Nadiā District, Bengal, situated in 23° 24′ N. and 88° 23′ E., in the head-

quarters subdivision, on the west bank of the Bhāgīrathi. Population (1901), 10,880, of whom Hindus numbered 10,416, Muhammadans 457, and Christians 7. This great preponderance of Hindus in a District where 59 per cent. of the inhabitants are Musalmāns is significant. Nabadwīp is reputed to have been founded in the twelfth century by Lakshman Sen, son of Ballāl Sen, king of Bengal. It was captured by Muhammad-i-Bakhtyār Khiljī in 1203. It has long been famous for its sanctity and learning, and its *pandits* are still consulted on questions of Hindu religion and precedent. Here towards the end of the fifteenth century was born the great Vaishnava reformer, Chaitanya, in whose honour a festival, attended by 8,000 or 10,000 pilgrims, is held annually in January–February. The famous *tols* or Sanskrit schools are referred to in the article on NADIĀ DISTRICT. The town was constituted a municipality under the name of Nadiā in 1869. The income during the decade ending 1901–2 averaged Rs. 7,000, and the expenditure Rs. 6,000. In 1903–4 the income was Rs. 9,100, mainly from a tax on persons (or property tax); and the expenditure was Rs. 8,400. The lodging-houses in the town are regulated under Bengal Act IV of 1871. Brass utensils are manufactured.

Plassey (from *palās*, the *Butea frondosa*).—Village in the head-quarters subdivision of Nadiā District, Bengal, situated in 23° 47′ N. and 88° 16′ E., on the left bank of the Bhāgīrathi river. It is famous as the scene of Clive's victory over Sirāj-ud-daula, Nawāb of Bengal, on June 23, 1757. After the capture of Calcutta by Sirāj-ud-daula in June, 1756, Clive was dispatched with reinforcements from Madras to re-establish the British factories in Bengal, and he recaptured Calcutta in January, 1757. After prolonged negotiations he succeeded in gaining over Mīr Jafar, the Nawāb's general, whom he promised to install as Nawāb in place of Sirāj-ud-daula. In March Chandernagore was taken from the French, and on June 13 a fresh advance was made; Kātwa was captured on the 18th, and on the 22nd the troops marched to Plassey, where Sirāj-ud-daula was encamped with an army of 50,000 foot, 18,000 horse, and 50 pieces of cannon, mostly 24-pounders and 32-pounders drawn by bullocks. To oppose this army Clive had a force of 900 Europeans, of whom 100 were artillerymen and 50 sailors, 100 topasses, or Portuguese half-castes, and 2,100 sepoys; the artillery consisted of 8 six-pounders and 2 howitzers. Clive encamped in a mango grove, which has since been washed away by the Bhāgīrathi,

and the enemy were entrenched on the river bank to the north of him. At daybreak on the 23rd the enemy advanced to the attack, enveloping his right, Mīr Jafar being on the extreme left of the line. Both sides maintained a vigorous cannonade until 2 o'clock, when Sirāj-ud-daula drew off and returned to his entrenchments. At this, Mīr Jafar lingered behind on the left and eventually joined the British. Clive advanced and cannonaded the Nawāb's entrenchment, and entered his camp at 5 o'clock after a slight resistance, Sirāj-ud-daula having already fled to Murshidābād. This decisive victory was won with only a small loss, but it made the British masters of Bengal. A monument marks the scene of the battle-field.

Rānāghāt Town.—Head-quarters of the subdivision of the same name in Nadiā District, Bengal, situated in 23° 11′ N. and 88° 34′ E., on the Churnī river. Population (1901), 8,744. Rānāghāt is an important station on the Eastern Bengal State Railway, and a terminus of the light railway which runs to Krishnagar. It was constituted a municipality in 1864. The income and expenditure during the decade ending 1901–2 averaged Rs. 9,000. In 1903–4 the income was Rs. 13,000, including Rs. 6,000 derived from a tax on persons and lands, and Rs. 4,000 from a conservancy rate; and the expenditure was Rs. 12,000. The town contains the usual public offices; the sub-jail has accommodation for 12 prisoners. Rānāghāt is an important trade centre, and the head-quarters of a Medical Mission started in 1893. Several dispensaries are maintained here and at out-stations, and are very largely attended.

Sāntipur.—Town in the Rānāghāt subdivision of Nadiā District, Bengal, situated in 23° 15′ N. and 88° 27′ E., on the Hooghly river. Population (1901), 26,898, having declined from 30,437 in 1891; but it is still the most populous town in the District. Hindus numbered 18,219; Muhammadans, 8,672; and Christians, 6. Sāntipur was constituted a municipality in 1865. The income during the decade ending 1901–2 averaged Rs. 28,000, and the expenditure Rs. 25,000. In 1903–4 the income was Rs. 31,000, including Rs. 16,000 derived from a tax on houses and lands, and Rs. 7,000 obtained from municipal property; and the expenditure was Rs. 26,000. Sāntipur was once the centre of a flourishing weaving industry, and its muslins had a European reputation, the town being the site of a Commercial Residency and the centre of large factories under the East India Company. Owing to the competition of machine-made goods, however, the weavers are no longer prosperous. There was at one time

a considerable trade in date-sugar, but this too is becoming less profitable. The earthquake of 1897 destroyed many of the largest buildings, and the impoverished owners have been unable to replace them. There is still, however, a considerable local trade. The Rāsh Jātrā festival in honour of Krishna, celebrated on the day of the full moon in Kārtik (October–November), is attended by about 10,000 persons; Sāntipur is also a celebrated bathing-place. The Zanāna Mission has a school and dispensary here.

Boundaries, configuration, and river system.

Murshidābād District.—District of the Presidency Division, Bengal, lying between 23° 43′ and 24° 52′ N. and 87° 49′ and 88° 44′ E., with an area of 2,143 square miles. In shape it resembles an isosceles triangle with its apex pointing to the north-west. The northern and eastern boundaries are formed by the Padmā, or main stream of the Ganges, which separates it from Mālda and Rājshāhi; on the south-east the Jalangī divides it from Nadiā; on the south it is bounded by Burdwān; and on the west by Bīrbhūm and the Santāl Parganas.

The Bhāgīrathi, which flows with many windings south-east and south, divides the District into two tracts nearly equal in size but differing in their physical features. The country to the west of the Bhāgīrathi, known as Rārh, forms a continuation of the Chotā Nāgpur plateau; its general level is slightly undulating and higher than that of the rest of the District, but it is interspersed with marshes and seamed by hill torrents. The Bāgri or eastern portion forms part of the old Ganges delta, and its river system consists of the PADMĀ with its distributaries, the BHĀGĪRATHI, BHAIRAB, Siālmāri, and JALANGĪ. The Bhāgīrathi, which forms the oldest known outlet of the Ganges and marks the western limit of the delta, has undergone great changes even in the last hundred years; its head has almost silted up, and it is with difficulty kept open for navigation by small boats during the dry season. Its chief tributaries are the Bānsloi and the Pāgla, which rise in the Santāl Parganas, the Chorā Dekrā, and the Dwārka. The Dwārka or Bābla is a continuation of the Brāhmanī, which rises in the Bīrbhūm hills, and after uniting with the Mor flows eastwards through the Kāndi subdivision to join the Bhāgīrathi; like all hill streams, it is very rapid and liable to sudden flood. The Bhairab and Siālmāri are unimportant streams flowing into the Jalangī; this river has a general trend to the south-west and eventually joins the Bhāgīrathi in Nadiā District. There are many small lakes, the largest being

the Telkar Bīl west of Berhampore, which is about 3 miles long and $2\frac{3}{4}$ miles broad, and a large horseshoe lake known as Motijhīl, which has been formed about 2 miles from MURSHIDĀBĀD TOWN by a change in the course of the Bhāgīrathi.

The portion of the District east of the Bhāgīrathi is covered with recent alluvium, consisting of sandy clay and sand along the course of the rivers, and fine silt consolidating into clay in the flatter parts of the river plain. The limit between the alluvium and the higher ground on the west is marked by a bank of stiff clay, gravel, and nodular limestone, which disappears as it passes downwards towards Bīrbhūm, where it amalgamates with the general alluvium. In the north-west of the District are some isolated clay hillocks. Geology.

The stretches of low-lying land under rice cultivation afford a foothold for many marsh species, while the numerous ponds and ditches are filled with submerged and floating water-plants. Remarkable among these for its rarity, and interesting on account of its distribution in Europe on the one hand and Australia on the other, is the floating *Aldrovanda vesiculosa*. The edges of sluggish creeks are lined with large sedges and bulrushes, and the banks of rivers have a hedgelike scrub jungle. The sides of embankments and village sites, where not occupied by habitations, are densely covered with shrubberies of semi-spontaneous species, interspersed with clumps of planted bamboos and groves of *Areca*, *Moringa*, *Mangifera*, and *Anona*, while banyan (*Ficus indica*), *pīpal* (*Ficus religiosa*), *babūl* (*Acacia arabica*), jack (*Artocarpus integrifolia*), *bel* (*Aegle Marmelos*), plantain, and date trees are also common. Waysides and waste places are filled with grasses and weeds, usually of little intrinsic interest, but often striking because of their distribution. Many of them have been inadvertently introduced by human agency, and include European or African and American species, which spread more plentifully than similar weeds of indigenous origin. The District is famous for its mangoes. Botany.

Big game has disappeared before the advance of cultivation, but leopards are occasionally met with and wild hog still abound in the jungles. Fauna.

During the hot season dry westerly winds alternate with the southerly sea-breezes of moderate temperature which characterize other parts of Lower Bengal; and the mean temperature, which is 79° for the whole year, rises from 65° in January to 88° in April, when the mean maximum is 100°. The mean Climate, temperature, and rainfall.

minimum is lowest (53°) in January. The annual rainfall averages 53 inches, of which 9·6 fall in June, 11 in July, 10 in August, and 9 in September.

Natural calamities. The earthquake of 1897 caused great damage, especially along the banks of the Bhāgīrathi river, where the old masonry buildings in the towns suffered enormously. The cost of repairs to public property was estimated to exceed 2 lakhs, and the damage to private property at 50 lakhs. Discharges of water and black mud occurred from the bed of the Bhāgīrathi near Jangipur, and sand and water were also thrown up from fissures in the marshy land near Gaur and Jalangī, one fissure extending for a length of 2 miles. The District is liable to annual inundation, and serious floods are prevented only by numerous and expensive embankments. In 1870 the embankments of the Bhāgīrathi were breached, and a disastrous flood occurred which destroyed the crops over a large area and caused great suffering. In 1886 the town of Murshidābād was inundated and thousands of people left destitute. The Dwārka is liable to sudden floods; and a tract of low-lying country about 16 miles in extent at the confluence of the Mor and Dwārka rivers in the Kāndi subdivision, known as Hejāl, is inundated more or less heavily almost every year.

History. In ancient times the Bhāgīrathi formed an important political boundary. To the east lay BANGA or Samatata and to the west KARNA SUVARNA, whose capital was probably at or near RĀNGĀMĀTI. Under the Sen kings the river separated the RĀRH from the BĀGRI division of Bengal, traces of which remain in the name Bāgdi. The country was conquered in 1197 by Muhammad-i-Bakhtyār Khiljī, and formed part of the dominions of the Muhammadan kings of Gaur. In the middle of the seventeenth century factories were founded at Cossimbazar, at that time the head-quarters of the silk trade; but the political importance of the district dates from the early part of the eighteenth century, when Murshid Kulī Khān moved the seat of Government from Dacca to the little town of Maksūdābād, thenceforth called after him, where he built a palace. Historical interest centres in MURSHIDĀBĀD, COSSIMBAZAR, and BERHAMPORE. Other places of archaeological importance are Badrihāt and Rāngāmāti. When a Collector was first appointed to the charge of the District in 1772, its area extended over the neighbouring *zamīndāris* of Bīrbhūm and Bishnupur. These outlying tracts had always been noted for lawlessness; and for the better administration of justice

they were finally severed from Murshidābād in 1787. The District was thus reduced to about its present size, but the irregularity of the boundary between it and Bīrbhūm has been a constant source of perplexity to the local officials. In 1875 the District was transferred from the Rājshāhi to the Presidency Division.

The population, which in 1872 numbered 1,214,104, increased to 1,226,790 in 1881, 1,250,946 in 1891, and 1,333,184 in 1901. The increase between 1872 and 1891 was very small, owing to the ravages of the 'Burdwān fever,' which devastated not only the low-lying waterlogged eastern tracts but also the elevated country to the west. In recent years there has been a great improvement in the health of the District, especially in the Rārh country. To the east, however, the climate is damp, and malaria is still prevalent; cholera is rarely absent, and enlargement of the spleen and liver is almost universal. Elephantiasis and hydrocele are endemic. The people.

The table below gives statistics of the population by subdivisions in 1901:—

Subdivision.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Berhampore	752	1	1,060	471,962	628	+ 3·7	22,853
Lālbāgh	370	2	632	192,978	522	+ 6·2	11,292
Jangipur	509	1	1,093	334,191	657	+ 5·4	16,955
Kāndi	512	1	883	334,053	652	+ 12·4	22,376
District total	2,143	5	3,668	1,333,184	622	+ 6·6	73,476

The towns are BERHAMPORE, the head-quarters, MURSHIDĀBĀD, AZĪMGANJ, JANGIPUR, and KĀNDI. The alluvial tract to the east of the Bhāgīrathi is much more densely populated than the west of the District. In the latter tract, however, the population is now growing rapidly, the increase at the Census of 1901 amounting to 12·9 per cent., compared with 3·1 per cent. in the east of the District, and rising as high as 26 per cent. in the Sāgardīghi and Kaliānganj *thānas*, which are still sparsely populated and attract a large number of immigrants from Bīrbhūm and the Santāl Parganas. The District suffers from diluvion along the northern boundary, and there has consequently been some loss of inhabitants by emigration to the corresponding alluvial formations in Mālda and Rājshāhi on the other side of the Padmā. There is a good

deal of temporary immigration from Bihār and the United Provinces, especially during the winter months. The vernacular of the District is the dialect known as Central Bengali. Muhammadans (676,899) in 1901 outnumbered the Hindus (643,474), having increased from 48·5 per cent. of the population in 1881 to 50·8 per cent. in the latter year. Hindus, however, still predominate to the west of the Bhāgīrathi.

Castes and occupations.

Most of the Muhammadans are Shaikhs (628,000). Among the Hindus the most numerous castes are Kaibarttas (95,000); Bāgdis (40,000), chiefly in the south-west; Sadgops (39,000), chiefly in the southern *thānas*; Chains (38,000), along the south-east; Brāhmans, Ahīrs, and Goālās. Agriculture supports 58 per cent. of the population, industries 19·3 per cent., commerce 0·6 per cent., and the professions 1·8 per cent.

Christian missions.

Christians numbered only 391, of whom 249 are natives. Various missions have established themselves in the District from time to time, but they have not met with much success. The only one now is a branch of the London Missionary Society, which began work in 1824.

General agricultural conditions.

The low-lying alluvial soil to the east is very fertile; the chief crop is the autumn rice, but it also grows several important cold-season crops. On the hard clay of the Rārh tract *āman* or winter rice is the main staple, though sugarcane, mulberry, tobacco, and various vegetables are likewise grown.

Chief agricultural statistics and principal crops.

The chief agricultural statistics for 1903–4 are shown below, in square miles:—

Subdivision.	Total.	Cultivated.	Cultivable waste.
Berhampore . .	752	346	195
Lālbāgh . . .	370	205	17
Jangipur . . .	509	281	31
Kāndi . . .	512	332	174
Total	2,143	1,164	417

It is estimated that 30 per cent. of the cultivated area is twice cropped. Rice is grown over an area of 723 square miles, the winter rice covering 34 per cent. of the net cropped area against 28 per cent. under autumn rice. About 167 square miles are under wheat and 95 square miles under barley. Other crops extensively cultivated are gram and other pulses and oilseeds, linseed and mustard being the most important kinds. Jute, sugar-cane, indigo, and mulberry are grown, but the cultivation of both indigo and mulberry is

now declining. Little use is made of the Agriculturists' Loans Act; in the two years ending 1898 Rs. 40,000 was advanced.

Cattle. Pasture land is plentiful all over the District. The chief grazing ground is a tract of low country in the Kāndi subdivision, about 16 miles in area, known as Hejāl; this is covered with water during the rains, but in the dry season it affords splendid pasturage. Cattle fairs are held at Pānchāmdī and Tālibpur in the Kāndi subdivision, and occasionally at Bhābta in the head-quarters subdivision.

Irrigation. The necessity for irrigation is limited to the west of the District, where water is conducted over the fields from tanks or natural watercourses. A large number of tanks are used for this purpose in the Manigrām Government estate.

Fisheries. Pearl fisheries exist in a series of lakes which mark the line of an old river and stretch from the Gobrā nullah to Rukimpur, a distance of about 38 miles. The mussel in which the pearls are found is a species of *Unio*, probably a variety of the pearl-bearing *Unio margaritifera*. The majority of the pearls are seed pearls, and they have usually a golden tint. Valuable pearls are occasionally procured, fetching as much as Rs. 200 each; but such a find is very rare, and the largest pearls found in recent years rarely exceed Rs. 15 or Rs. 30 in value. The fishery season is in the hot months, when the water is low and almost stagnant. The various branches of the industry furnish employment for about 300 persons during this period, and its annual value is estimated at Rs. 3,000.

Minerals. Iron is found, but not in sufficient quantities to repay smelting. Calcareous earth occurs in several places and is extensively used for making lime. *Kankar* or nodular limestone crops up generally over the western half of the District, and is used for road-making.

Arts and manufactures. The silk industry in this part of Bengal is of great age, and the silk trade is one of the earliest of the industries which occupied the servants of the East India Company in the District, their efforts being stimulated by competition with the French, Dutch, and Armenians. Silk factories date from the middle of the seventeenth century, when Cossimbazar was the most important centre. The winding of silk is still carried on, but it has steadily declined since the Company closed their factory at Jangipur in 1835. The decline is due in a great measure to diseases of the worms, which the Bengal Silk Association, constituted in 1898, is now taking steps to combat. There is a nursery at Chandanpur which distributes large quantities of selected seed to the rearers; similar nurseries

are being built at Rājdharpur and Kumārpur, and the use of examined seed is spreading in the Government estates west of the Bhāgīrathi.

Silk is still largely manufactured in the head-quarters and Jangipur subdivisions, where a great variety of fabrics are made. The best silks are those produced in the Mirzāpur, Hariharpāra, and Daulat Bāzār *thānas*; in 1903-4 the Mirzāpur weavers turned out 26,000 yards of silk cloth, valued at Rs. 33,000. In addition to the native artisans working with hand-looms, there were in that year 54 factories worked by machinery which had an out-turn of 396,000 lb., valued at nearly 27 lakhs, the principal firms being Messrs. Louis Payen & Co. and the Bengal Silk Company. *Tasar* and *matkā* silks are also manufactured, the latter being best prepared by Indian weavers on their hand-looms. Cotton-weaving with hand-looms is still an important occupation, and silk and cotton dyeing are carried on by a few families at Khagrā Bāluchar and Mirzāpur. Murshidābād town has skilled embroiderers, who adorn clothes, gloves, slippers, and caps with gold and silver lace. Gold and silver wire is also made in small quantities. *Bidri* ware is produced by a few workmen at Murshidābād; the process consists in inlaying with silver a sort of pewter which is blackened with sulphate of copper. Bell-metal and brass utensils of a superior kind are manufactured in large quantities at Khagrā, Berhampore, Kāndi, and Baranagar; these articles are sold in the local markets and are also exported. Locks, nails, and betel-nut cutters are made at Dhuliān. Ivory-carving was formerly a considerable industry, but is now confined to a few workmen at Murshidābād. Blankets, shell bracelets, and pottery are manufactured in a few villages, and musical instruments and *hukka* pipes are also made. The indigo industry has practically disappeared, the out-turn in 1903-4 having fallen to 13 tons.

Commerce. The external trade is mainly with Calcutta. The chief imports are European piece-goods, salt, coal and coke, and kerosene oil; and the chief exports are rice, wheat, gram, oilseeds, jute, silk, indigo, and metal ware. The District is favourably situated for trade, being served by two offshoots of the Padmā, the Bhāgīrathi and the Jalangī, which form the Hooghly and lead direct to Calcutta. The principal seats of trade are JANGIPUR, AZĪMGANJ, JIĀGANJ, Khagrā, and DHULIĀN on the Bhāgīrathi, and BHAGWĀNGOLĀ on the Ganges. Trade is carried on chiefly at permanent markets, and periodical fairs are also held at Dhuliān, Jangipur, Chaltiā, Suktipur, and

Kāndi. The Jain merchants of Azīmganj are among the richest traders in Bengal.

Railways and roads.

The little railway from Nalhāti to Azīmganj runs for about 14 miles within the District. The Murshidābād branch of the Eastern Bengal State Railway, which has recently been opened, leaves the main line at Rānāghāt and enters the District near Plassey, whence it runs nearly due north through Beldānga, Berhampore, Murshidābād, and Jiāganj to Lālgolā. There is also a proposal to bridge the Bhāgīrathi between Jiāganj and Murshidābād, and to connect the new line with the East Indian Railway system. The District board maintains 33 miles of metalled and 526 miles of unmetalled roads, with 335 bridges and 22 ferries. The most important roads are those connecting Berhampore, the head-quarters station, with Krishnagar, Bhagwāngolā, Patkabāri, Kāndi, and Jalangī; Murshidābād with Pānchgrām; and Jarur with Gāmbhīra.

Water communications.

Steamer services ply up the Padmā from Goalundo throughout the year, and the other big rivers are navigable by large country boats, except during the latter part of the dry season; for the rest of the year the Calcutta Steam Navigation Company maintains a regular steamer service up the Bhāgīrathi from Calcutta. The measures which have been taken from time to time to keep this river and the Jalangī open for traffic are described in the article on the NADIĀ RIVERS. In 1903–4 about Rs. 41,000 was realized as tolls, while the expenditure in keeping the channels open amounted to Rs. 44,000.

Famine.

The famine of 1770 is believed to have carried off three-eighths of the population of this District. In 1870 some distress was caused by high prices, and severe scarcity was felt in 1874 and 1897. On the latter occasion Government expended Rs. 73,000 on famine relief, and was aided by the munificence of local *zamīndārs* headed by the late Mahārānī Sarnamayī, C.I. The aggregate number of units relieved, reckoned in terms of one day, was 454,000.

District subdivisions and staff.

For administrative purposes the District is divided into four subdivisions, with head-quarters at BERHAMPORE, JANGIPUR, KĀNDI, and LĀLBĀGH. The Magistrate-Collector is assisted at head-quarters by a staff of four Deputy-Magistrate-Collectors and occasionally by a Joint or Assistant Magistrate. The subdivisional officers at Kāndi, Lālbāgh, and Jangipur belong to the Provincial service recruited in India, and are assisted by Sub-Deputy-Collectors. The Executive Engineer in charge of the Nadiā Rivers division is stationed at Berhampore.

Subordinate to the District and Sessions Judge for the

Civil and criminal justice.

disposal of civil judicial work are a subordinate Judge at head-quarters and seven Munsifs, of whom two each are stationed at Berhampore, Jangipur, and Kāndi, and one at Lālbāgh. The criminal courts include those of the Judge, the District Magistrate, and the above-mentioned magistrates. The most common offences are those arising out of disputes about land.

Land revenue.

In Todar Mal's rent-roll of 1582 the present District area formed portion of Audambar or Tānda, Sātgaon, and other *sarkārs*. In Jafar Khān's settlement of 1722 the name Murshidābād was applied to an area apparently coextensive with the great *zamīndāri* of Rānī Bhawāni, properly known as Rājshāhi. It is therefore impossible to compare the present land revenue of the District with that realized under Muhammadan rule. The whole of the District is permanently settled, with the exception of 72 temporarily settled estates with a current demand of Rs. 30,000, and 64 estates with a demand of Rs. 26,000 held direct by Government. The average incidence of rental is Rs. 3–1–5 per cultivated acre; but rents differ widely in various parts, being lowest in the head-quarters and Jangipur subdivisions, and highest in the Kāndi subdivision, where rice and wheat lands bring in from Rs. 7–8 to Rs. 18, and mulberry and sugar-cane lands from Rs. 12 to Rs. 24 per acre. In the head-quarters subdivision, on the other hand, the rent of rice and wheat lands ranges between Rs. 1–2 and Rs. 9, that of land growing pulse between Rs. 2–4 and Rs. 3, sugar-cane land between Rs. 3 and Rs. 7–8, and mulberry land between Rs. 1–12 and Rs. 12 per acre.

The *utbandi* system of tenure is very common, especially in the Plassey *pargana*; for a description of this tenure see the article on NADIĀ DISTRICT. *Aimmās* or quit-rent tenures are numerous in the Fateh Singh estate. The average area of a tenant's holding is only one acre.

The following table shows the collections of land revenue and of total revenue (principal heads only), in thousands of rupees:—

	1880-1.*	1890-1.	1900-1.	1903-4.
Land revenue . .	13,05	10,68	10,66	10,67
Total revenue . .	18,12	16,23	17,78	17,95

* Between 1880-1 and 1890-1, certain estates were transferred from Murshidābād to other Districts.

Local and municipal

Outside the municipalities of BERHAMPORE, AZĪMGANJ, JANGIPUR, KĀNDI, and MURSHIDĀBĀD, local affairs are managed

by the District board, with subordinate local boards in each subdivision. The income of the District board in 1903–4 was Rs. 1,27,000, of which Rs. 64,000 was derived from rates. The expenditure was also Rs. 1,27,000, including Rs. 69,000 spent on public works and Rs. 35,000 on education. A scheme for supplying the rural areas with drinking-water is in progress; this was initiated by a gift of a lakh from Rājā Jogendra Nārāyan Rao of Lālgolā. Government.

There are 74 miles of embankments along the Bhāgīrathi, under the Public Works department, to prevent the country on the east bank from being flooded by the spill of the river. The propriety of maintaining these embankments has been called in question, on the ground that the land which would otherwise be flooded is thereby deprived of its supply of fertilizing silt, while the river, being confined to its bed, deposits its silt there, and thus gradually raises itself above the level of the surrounding country. Public works.

Murshidābād contains 24 police stations and 26 outposts; and in 1903 the force subordinate to the District Superintendent consisted of 4 inspectors, 53 sub-inspectors, 51 head constables, and 675 constables. In addition, there is a rural police of 264 *daffadārs* and 2,947 *chaukīdārs*. The District jail at Berhampore has accommodation for 340 prisoners, and subsidiary jails at the three divisional out-stations have accommodation for 62. Police and jails.

In spite of the proximity of the District to Calcutta, only 5·5 per cent. of the population (10·6 males and 0·6 females) could read and write in 1901. The total number of pupils under instruction increased from 12,000 in 1883 to 22,994 in 1892–3, and 24,837 in 1900–1. In 1903–4, 24,015 boys and 1,531 girls were at school, being respectively 24·5 and 1·5 per cent. of the children of school-going age. The number of educational institutions, public and private, in that year was 661: namely, one Arts college, 58 secondary, 582 primary, and 20 special schools. The expenditure on education was 2·17 lakhs, of which Rs. 44,000 was met from Provincial funds, Rs. 25,000 from District funds, Rs. 2,000 from municipal funds, and Rs. 84,000 from fees. The principal institutions are the college and Sanskrit *tol* at Berhampore, and the Nawāb's *madrasa* and high school at Murshidābād. The London Missionary Society maintains a high school at Khagrā near Berhampore. Education.

In 1903 the District contained 7 dispensaries, of which 5 had accommodation for 115 in-patients. The cases of 65,000 out- Medical.

patients and 1,335 in-patients were treated during the year, and 3,320 operations were performed. The expenditure was Rs. 27,000, of which Rs. 2,000 was met by Government contributions, Rs. 3,000 from Local and Rs. 11,000 from municipal funds, and Rs. 3,000 from subscriptions. The hospital at Kāndi, which is maintained from an endowment fund, now amounting to 1·59 lakhs, left by Kumār Giris Chandra Sinha of Paikpāra, is the best equipped in the District. There is a lunatic asylum at Berhampore.

Vaccination. Vaccination is compulsory only in the municipal towns. In 1903–4 the number of successful vaccinations was 37,000, representing 36 per 1,000 of the population.

[Sir W. W. Hunter, *Statistical Account of Bengal*, vol. iii (1876); Beveridge, 'Note on the Parganas of Murshidābād,' *Proceedings of the Asiatic Society* (1892); Major Walsh, I.M.S., *History of Murshidābād* (1902); G. C. Dutt, *Monograph on Ivory Carving in Bengal* (Calcutta, 1901); N. G. Mukerjī, *Monograph on the Silk Fabrics of Bengal* (Calcutta, 1903); P. C. Majumdar, *The Musnud of Murshidābād* (Murshidābād, 1905).]

Berhampore Subdivision.—Head-quarters subdivision of Murshidābād District, Bengal, lying between 23° 48′ and 24° 22′ N. and 88° 11′ and 88° 44′ E., with an area of 752 square miles. A great portion of the subdivision is low-lying and liable to floods. The population in 1901 was 471,962, compared with 454,919 in 1891, the density being 628 persons per square mile. It contains one town, BERHAMPORE (population, 24,397), the head-quarters; and 1,060 villages.

Lālbāgh Subdivision.—Central subdivision of Murshidābād District, Bengal, lying between 24° 6′ and 24° 23′ N. and 87° 59′ and 88° 30′ E., with an area of 370 square miles. The subdivision is divided almost equally by the Bhāgīrathi, flowing from north to south; the eastern portion is an alluvial flat, while the western portion is high and undulating. The population in 1901 was 192,978, compared with 181,726 in 1891, the density being 522 persons per square mile. It contains two towns, MURSHIDĀBĀD (population, 15,168), the head-quarters, and AZĪMGANJ (13,385); and 632 villages.

Jangipur Subdivision.—Northern subdivision of Murshidābād District, Bengal, lying between 24° 19′ and 24° 52′ N. and 87° 49′ and 88° 21′ E., with an area of 509 square miles. The subdivision is divided into two parts by the Bhāgīrathi, the land to the west of that river being high and undulating, and that to the east a fertile alluvial tract liable to floods. The population

in 1901 was 334,191, compared with 317,179 in 1891, the density being 657 persons per square mile. It contains one town, JANGIPUR (population, 10,921), the head-quarters; and 1,093 villages.

Kāndi Subdivision.—South-western subdivision of Murshidābād District, Bengal, lying between 23° 43′ and 24° 12′ N. and 87° 50′ and 88° 14′ E., with an area of 512 square miles. The subdivision, which is watered by the Bhāgīrathi and Dwārka rivers, consists for the most part of undulating country; but near those rivers the land is alluvial and low-lying. The population in 1901 was 334,053, compared with 297,122 in 1891, the density being 652 persons per square mile. It contains one town, KĀNDI (population, 12,037), the head-quarters; and 883 villages.

Azīmganj.—Town in the Lālbāgh subdivision of Murshidābād District, Bengal, situated in 24° 15′ N. and 88° 16′ E., on the right bank of the Bhāgīrathi. The population of Azīmganj, together with Jiāganj on the opposite bank, which is included within the same municipal limits, was 13,385 in 1901. Azīmganj is the terminus of the branch railway from Nalhāti junction, and is an important trade centre. A small steamer runs in connexion with the railway between Azīmganj and Berhampore, but sometimes during the dry season it cannot get beyond Lālbāgh. Azīmganj is connected by a ferry with Jiāganj on the opposite bank; and a service of steamers, which plies during the rains between Jiāganj and Dhuliān, calls here for goods and passengers. The town contains many well-built houses and some handsome temples belonging to Jain merchants. Azīmganj was constituted a municipality in 1896. The income during the eight years ending 1903-4 averaged Rs. 16,000, and the expenditure Rs. 15,000. In 1903-4 the income was Rs. 16,000, of which Rs. 9,000 was derived from a tax on persons (or property tax); and the expenditure was Rs. 15,500.

Badrihāt.—Ruins in the Lālbāgh subdivision of Murshidābād District, Bengal, situated in 24° 18′ N. and 88° 15′ E., on the right bank of the Bhāgīrathi, a few miles above Azīmganj. An ancient city with a palace or fort once stood here. Stones and pillars engraved with Pāli characters, gold coins, and much broken pottery have been found; but nothing has yet been discovered which throws any light upon the history of the place. The Pāli inscriptions seem to point to the Buddhist period. The old Hindu name of Badrihāt was changed by the Muhammadans to Ghiyāsābād, in honour of Ghiyās-ud-dīn,

one of the Pathān kings of Gaur, who is said to have been buried here.

Berhampore Town (*Bahrāmpur*).—Head-quarters of Murshidābād District, Bengal, situated in 24° 8′ N. and 88° 16′ E., on the left bank of the Bhāgīrathi, 5 miles below the town of Murshidābād. Population (1901), 24,397, of whom 19,779 were Hindus, 4,335 Muhammadans, and 255 Christians. Berhampore was selected as a site for a cantonment in 1757, shortly after the battle of Plassey, the factory house at Cossimbazar having been destroyed by Sirāj-ud-daula. The Court of Directors sanctioned the project to station troops here after the revolt of Mīr Kāsim in 1763, and the barracks were completed in 1767 at a cost of 30·23 lakhs. The cantonment will always be remembered as the scene of the first overt act of mutiny in 1857, when the garrison had dwindled down to one battalion of native infantry and another of irregular cavalry and two guns. The sepoys of the 19th Regiment, who had been intensely excited by the story of the greased cartridges, rose, on the night of February 25, in open mutiny, but were prevented from doing any actual harm by the firm and at the same time conciliatory behaviour of their commanding officer. After the Mutiny European troops were again stationed here, but they were finally withdrawn in 1870. The barracks are still a prominent feature of the town, though they have now been appropriated to other uses.

Berhampore was constituted a municipality in 1876. The municipal income during the decade ending 1901–2 averaged Rs. 46,000, and the expenditure Rs. 44,000. In 1903–4 the income was Rs. 62,000, of which Rs. 16,000 was derived from a tax on persons (or property tax), Rs. 15,000 from a water rate, and Rs. 12,000 from a conservancy rate. The expenditure was Rs. 71,000. In 1894 the late Mahārānī Sarnamayī, C.I., undertook to furnish the town with a supply of filtered water. The works, which were opened in 1899, are designed to give a daily supply of 200,000 gallons. The water is pumped up from the Bhāgīrathi into three settling tanks, each with a capacity of 229,000 gallons, whence it passes through filters into the clear-water reservoirs. There are in all 12¼ miles of pipes through which the water is distributed to the town.

The Magistrates' courts and municipal offices are located in the barracks. The Sessions Judge's court is about a mile to the south-east. The old military hospital has been converted into a District jail, with accommodation for 340 prisoners; the chief industries are oil-pressing, *surki*-pounding, carpentry, *darī*-

weaving, and cane and bamboo work. Other public buildings are the circuit house and *dāk* bungalow, college, hospital, and lunatic asylum. There are several churches in the town, and the cemetery contains some interesting memorials. The Berhampore College, founded by Government in 1853, is a first-grade college with law classes and a hostel for boarders. A collegiate school is attached to it. It possesses fine buildings and a library, and is managed by a board of trustees. The Berhampore Sanskrit *tol* is managed by the estate of the late Rānī Arna Kālī Devī of Cossimbazar at an annual cost of Rs. 3,000. The hospital has 36 beds. The lunatic asylum has been recently enlarged at a cost of 3 lakhs, so as to provide accommodation for 267 male and 152 female patients. Lunatics are received here from the Presidency, Burdwān, and Bhāgalpur Divisions; in 1903-4 the maximum number of inmates was 263.

Bhagwāngolā.—River mart in the Lālbāgh subdivision of Murshidābād District, Bengal, situated in 24° 20′ N. and 88° 18′ E., on the Padmā. Population (1901), 989. There are in reality two villages of the name, 5 miles from each other, called New and Old Bhagwāngolā. The latter was under Muhammadan rule the port of Murshidābād and an important commercial town. In 1743 it was attacked four times by the Marāthās without success; but subsequently, in 1750, it was taken, plundered, and burned by them. Sirāj-ud-daula rested here in his flight to Rājmahāl in 1757. The river no longer flows by Old Bhagwāngolā, and the traffic is confined to the new town.

Cossimbazar (*Kāsimbāzār*).—Decayed town in the head-quarters subdivision of Murshidābād District, Bengal, situated in 24° 8′ N. and 88° 17′ E., on the Bhāgīrathi, and now included in the Berhampore municipality. Population (1901), 1,262. This town, the site of which is now a swamp marked by a few ruins, may lay claim to an historical interest superior even to that of the city of Murshidābād. Long before the days of Murshid Kulī Khān, who founded and gave his name to the latter city, the trade of Bengal centred at Cossimbazar, and the different European nations who traded to India had factories here from very early times. The common name for the Bhāgīrathi in English records down to the early years of the nineteenth century was the Cossimbazar river; and the triangular tract enclosed by the Padmā, Bhāgīrathi, and Jalangī was known in the early days of the Company as the Island of Cossimbazar. The place is said to derive its name from

a legendary founder, Kāsim Khān. Its history cannot be traced back beyond the seventeenth century; but even when first mentioned it appears as a place of great consequence. After Sātgaon had been ruined by the silting up of the Saraswatī mouth, and before Calcutta was founded, Cossimbazar was the great emporium.

An English commercial agent was first appointed to Cossimbazar in 1658; and nine years later it was decided that the Chief at this place should be also a member of Council. In 1686 the factory at Cossimbazar, in common with the other English factories in Bengal, was confiscated by order of the Nawāb Shaista Khān; but it was restored a year or two later, and at the close of the century had become the leading English commercial agency in Bengal. In 1681, when Job Charnock, the future founder of Calcutta, was Chief at Cossimbazar, of £230,000 sent out by the East India Company as the investment to Bengal, £140,000 was assigned to Cossimbazar. In 1763, out of a total of £400,000 required as advances for investment, Cossimbazar demanded £90,000, or as much as any other two agencies, excepting Calcutta, and the filatures and machinery of the Company were estimated to be worth 20 lakhs. According to native tradition, the town was so studded with lofty buildings that the streets never saw the rays of the sun.

The factory of the Company at Cossimbazar owed much of its wealth, and all its political importance, to its close neighbourhood to the Muhammadan capital at Murshidābād. But from the same cause it was liable to constant danger. It was a matter of common occurrence for the Nawāb to order out his troops to blockade the walled factory, whenever he had any quarrel with the English Council at Calcutta. In 1757, when the Nawāb Sirāj-ud-daula resolved to drive the English out of Bengal, Cossimbazar felt the first effects of his anger. The factory was taken without resistance, and the Englishmen, including Mr. Watts, the Resident, and Warren Hastings, his assistant, were sent in custody to Murshidābād. After the battle of Plassey, Cossimbazar regained its commercial importance; but the political power formerly held by the Resident was transferred to the English Agent at the court of the Nawāb, who lived at Murshidābād.

The decay of Cossimbazar dates from the beginning of the nineteenth century, when its climate, which had previously been celebrated for salubrity, underwent an unexplained change for the worse, so that the margin of cultivation receded and

wild beasts increased. In 1811 Cossimbazar town is described as noted for its silk, hosiery, *koras*, and inimitable ivory work, while the surrounding country was 'a wilderness inhabited only by beasts of prey.' In 1813 the ruin of the town was effected by a change in the course of the Bhāgīrathi, which suddenly deserted its ancient bed and, instead of following its former bend to the east, took a sweep to the west; it now flows three miles from the site of the old town. The channel in front of the warehouses of Cossimbazar became a pestiferous marsh, a malarious fever broke out, and the place gradually became depopulated. The Company's filatures, however, continued to work, and weaving ceased only when it became impossible any longer to compete with the cheaper cotton goods of Manchester. In 1829 a census returned the population at 3,538. The town is the seat of the Mahārājā of Cossimbazar, a descendant of Kānta Bābu, banian of Warren Hastings. His palace is a fine building, portions of which were constructed of beautiful carved stone taken from the palace of Chet Singh, the Mahārājā of Benares. Apart from this, ruins of huge buildings and broad mounds of earth alone remain to attest the former grandeur of the place. The first wife of Warren Hastings was buried here, and her tomb with its inscription is still in existence.

Dhuliān.—Mart in the Jangipur subdivision of Murshidābād District, Bengal, situated in 24° 42′ N. and 87° 58′ E., on the Bhāgīrathi. The name is commonly applied to a group of five villages, with a population in 1901 of 4,990 persons. Dhuliān is the site of an annual fair and one of the most important river marts in the District, being the seat of a large trade in rice, pulses, gram, wheat, and other food-grains. A steamer service plies between Dhuliān and Jiāganj during the rains.

Giriā.—Site of battle-field in the Jangipur subdivision of Murshidābād District, Bengal, situated in 24° 30′ N. and 88° 6′ E., to the south of Sutī. It is famous as the scene of two important battles: the first in 1740, when Alī Vardi Khān defeated Nawāb Sarfarāz Khān, and won for himself the government of Bengal; the second in 1763, when Nawāb Mīr Kāsim, after declaring war on the East India Company, was finally defeated by Major Adams and the governorship was conferred for the second time on Mīr Jafar.

Jangipur Town.—Head-quarters of the subdivision of the same name in Murshidābād District, Bengal, situated in 24° 28′ N. and 88° 4′ E., on the Bhāgīrathi. Population (1901), 10,921. The town, which is said to have been founded by

the emperor Jahāngīr, was during the early years of British rule an important centre of the silk trade and the site of one of the Company's Commercial Residencies. There are still extensive filatures in the neighbourhood. Situated near the mouth of the Bhāgīrathi, it is the chief toll station for boats passing along that river. It was constituted a municipality in 1869. The income during the decade ending 1901–2 averaged Rs. 11,000, and the expenditure Rs. 10,000. In 1903–4 the income was Rs. 14,000, including Rs. 4,000 obtained from tolls and ferries and Rs. 3,000 derived from a tax on persons (or property tax); and the expenditure was Rs. 13,000. The town with the courts and offices originally stood on the left bank of the Bhāgīrathi; but, owing to the shifting of the river, the subdivisional offices have been moved to its right bank, that portion of the town being known as Raghunāthganj. The sub-jail has accommodation for 26 prisoners.

Jiāganj.—Village in the Lālbāgh subdivision of Murshidābād District, Bengal, situated in 24° 15′ N. and 88° 16′ E., on the left bank of the Bhāgīrathi, 3 miles north of Murshidābād city, and opposite Azīmganj station on the East Indian Railway. Population (1901), 8,734. Though it has somewhat declined in importance, Jiāganj is still a large dépôt where rice, jute, silk, sugar, and a small quantity of cotton are collected for export. A jute-press is at work here. Jiāganj, which is included within the Azīmganj municipality, is connected with Azīmganj by a ferry, and during the rainy season a steamer plies between it and Dhuliān. It contains some large houses, the property of Jain merchants, many of whom dwell here, though the main colony lives at Azīmganj.

Kāndi Town.—Head-quarters of the subdivision of the same name in Murshidābād District, Bengal, situated in 23° 58′ N. and 88° 3′ E., near the Mor river. Population (1901), 12,037. Kāndi owes much of its importance to the fact that it is the residence of the Rājās of Paikpāra, a wealthy and devout Hindu family. The founder of this family was Gangā Gobind Singh, a banian of Warren Hastings, who was born at Kāndi, and retired thither in his old age with an immense fortune, which he devoted to the erection of shrines and images of Krishna. His name has acquired a traditional celebrity for the most magnificent *srāddha* or funeral obsequies ever performed in Bengal, costing 20 lakhs, in honour of his mother. Kāndi was constituted a municipality in 1869. The income and expenditure during the decade ending 1901–2 averaged Rs. 7,000. In 1903–4 the income was Rs. 9,000,

mainly from a tax on persons; and the expenditure was Rs. 8,000. The town contains the usual public offices, a sub-jail with accommodation for 24 prisoners, and a dispensary with 24 beds. The latter is maintained from the proceeds of an endowment fund, now amounting to 1·59 lakhs, left by the late Kumār Giris Chandra Sinha of Paikpāra, and is the best-equipped hospital in the District.

Murshidābād Town.—Head-quarters of the Lālbāgh sub-division of Murshidābād District, Bengal, situated in 24° 12′ N. and 88° 17′ E., on the left bank of the Bhāgīrathi. The town, which possesses great historical interest, was formerly known as Makhsūsābād or Maksūdābād, and is stated by Tieffenthaler to have been founded by the emperor Akbar. In 1696 the Afghāns from Orissa in the course of their rebellion defeated the imperial troops and plundered the place. In 1704 Nawāb Murshid Kulī Khān moved the seat of government from Dacca to Maksūdābād, which he then called, after himself, Murshid-ābād; the old name, however, still lingers, and the spelling Muxudavad is found in the early English records as late as 1760. Tradition relates that Murshid Kulī Khān moved his government to this place through fear of prince Azīm-ush-shān, who had attempted to assassinate him at Dacca. It seems more probable that he was induced to do so by political considerations. Dacca had lost its importance, for the Maghs and the Portuguese were no longer dangerous; and the banks of the Bhāgīrathi afforded a more central position for the management of the three provinces of Bengal, Bihār, and Orissa. The new city was also situated on the main line of communication between the Upper Ganges valley and the sea, along which the treasures of India were now beginning to find their way to the European settlements on the Hooghly; and it commanded the town of Cossimbazar, where all the foreigners had important factories. Moreover, the situation in those days was regarded as very healthy. Murshid Kulī Khān, by birth a Brāhman and by education a courtier, was one of the most able administrators that ever served the Mughal empire in time of peace. Second only to the Nawāb in establishing the importance of Murshidābād was the Jain banker, Mānik Chānd Jagat Seth, by whose predominating influence as a financier the residence of the governor became also the centre of the revenue collections for Bengal, Bihār, and Orissa. History.

The dynasty founded by Murshid Kulī Khān did not continue in the direct line beyond two generations. Alī Vardi Khān won the governorship by conquest in 1740. Troublous

times followed; in 1742 Marāthā invaders sent by the Bhonsla Rājā of Berār plundered the suburbs of Murshidābād and obtained a booty of 3 lakhs from Jagat Seth. In the next year two separate armies of Marāthās came, and Alī Vardi avoided battle only by playing off one chief against the other, and at last got rid of the stronger by paying a large sum of money. From this date till 1751, when he ceded to the Marāthās the province of Orissa and agreed to pay an annual tribute of 12 lakhs, Alī Vardi was continually pressed by both the Marāthās and the Afghāns. He was succeeded in 1756 by his grandson Sirāj-ud-daula, who in the following year captured the English factory at Cossimbazar. During this period the city itself never suffered from either domestic or foreign war. Each successive prince, after the Eastern fashion, built for himself one or more new palaces; and the great family of Jagat Seth preserved their position as State bankers from generation to generation. On entering Murshidābād after the victory of Plassey, Colonel Clive wrote :—

'This city is as extensive, populous, and rich as the city of London, with this difference, that there are individuals in the first possessing infinitely greater property than in the last city.'

Even after the conquest of Bengal by the British, Murshidābād remained for some time the seat of administration. Plassey was fought in 1757, just beyond the present southern limits of Murshidābād District; but that battle was not regarded at the time as interfering with the Muhammadan government, beyond the substitution of a subservient Nawāb for the savage Sirāj-ud-daula. The only apparent result was that the Commercial Chief of the factory at Cossimbazar was superseded by a Political Resident to the Darbār, who took up his quarters nearer the city, at Motijhīl ('the pearl lake'), in the palace of a former Nawāb. In 1765 the East India Company received the grant of the Dīwāni or financial administration of Bengal, Bihār, and Orissa from the Mughal emperor, Shāh Alam, as the prize of the victory at Buxar; and in the following year Lord Clive, as Governor of Bengal, presided in person at the *punyā* or annual settlement of the revenues. But even on this occasion the young Nawāb sat on the *masnad*, with the Governor on his right hand. The entire work of government still remained, without serious check or supervision, in the hands of the Muhammadan officials; and Jagat Seth continued to be the State banker. The first great reform was effected in 1722 by Warren Hastings, who removed the supreme civil and criminal courts from Murshidābād to

Calcutta. After an experience of three years, the tribunal of criminal justice was retransferred to Murshidābād; and it was not till 1790, under Lord Cornwallis, that the entire revenue and judicial staff was ultimately fixed at the present capital of India. The mint was abolished in 1799. About the same date, the civil head-quarters of the District were transferred to Berhampore, which had been from the first the site of the military cantonment. Murshidābād city was thus left only as the residence of the Nawāb Nāzim, a descendant of Mīr Jafar, who till 1882 retained certain marks of sovereignty within his palace, and received a pension of 16 lakhs a year. The last holder of the title was for many years resident in England. On his return to India, he abdicated his position in favour of his son, who succeeded him, but without any sovereign rights, and on a diminished pension. The title of the present descendant of the once independent rulers of Bengal, Bihār, and Orissa is now simply that of Nawāb Bahādur of Murshidābād.

With the loss of its political importance the size and population of Murshidābād also declined. The largest dimensions of the city proper in 1759 are said to have been 5 miles along the Bhāgīrathi in length and 2½ miles in breadth on each bank of the river, while the circumference of its extensive suburbs has been put as high as 30 miles. In the beginning of the nineteenth century, by which time the decay of the city had already set in, we have several estimates of the population; but we know neither the area which the city was then supposed to cover, nor the modes of enumeration adopted. In 1815 the number of houses was estimated at 30,000, and the total population at 165,000 souls. In 1829 the Magistrate, Mr. Hawthorn, returned the population at 146,176. In 1837 Mr. Adam found the inhabitants of Murshidābād city to amount to 124,804 persons, which shows a decrease of nearly 15 per cent. in eight years. At the time of the first regular Census in 1872 the population of the town was 46,182, and it has since still further diminished. In 1901, excluding its suburb AZĪMGANJ, which was formed into a separate municipality in 1896, its inhabitants numbered only 15,168. Population.

Murshidābād exhibits at the present day but few traces of its former grandeur. The chief object of attraction is the palace of the Nawāb Bahādur on the banks of the Bhāgīrathi. This is an imposing pile of buildings in the Italian style, designed by Colonel Macleod of the Bengal Engineers, but executed entirely by natives and finished in 1837. The edifice Buildings. The palace.

itself is called the Hazār Duāri, or 'house of one thousand doors,' and together with other buildings enclosed within the same wall is known as the Nizāmat Kila or fort. The palace is 425 feet long, 200 feet wide, and 80 feet high. The ground floor is of stone, the first floor of marble, and the second floor of wood. The banqueting hall is 191 feet long and 55 feet wide. In the centre of the building is a dome, from which hangs a superb chandelier of 110 branches. The palace contains many rare old pictures, costly jewellery, china, and arms. The residences of the Nawāb Bahādur and the members of the Nizāmat family are a series of one-storeyed buildings, devoid of beauty and unsafe to live in.

The Imāmbāra (house of prayer), which was built directly in front of the northern principal door in the year 1847, is a fine structure, considerably larger than the Imāmbāra at Hooghly. It stands on the site of a more celebrated building erected by Sirāj-ud-daula, which was accidentally burnt down in 1840.

About 1½ miles to the east of the palace is the Topkhāna, the site of the artillery park of the Nawāb Nāzim, and the east entrance to the old city. Here is a large gun, 17½ feet long with a girth of 5 feet at the breech, weighing 2½ maunds, which was made at Dacca during the reign of Shāh Jahān. The gun is now embedded in a *pīpal*-tree, which has lifted it many feet above the ground. In the palace armoury is another gun, cast by Kishor Dās Karmakār, formerly the property of Mahārājā Krishna Chandra Rai of Nadiā.

Motijhīl. One and a half miles south-east of the palace is Motijhīl ('pearl lake'), built in an old bed of the Bhāgīrathi, in the shape of a horseshoe, by Nawāzish Muhammad Khān, nephew and son-in-law of Alī Vardi Khān, who, with materials brought from the ruins of Gaur, built a stone hall (Sangi-Dālān), Mahal-sarai (harem), a mosque and out-offices, and lived here with his beautiful wife, Ghaseti Begam. Motijhīl was taken by Sirāj-ud-daula in 1756 on the death of Nawāzish Muhammad, and it was from here that he marched for the battle of Plassey. Mīr Jafar built a garden-house here in 1758. Lord Clive stayed at Motijhīl in 1765 to negotiate the transfer of the Dīwāni to the Company, and again in 1766, when the first English *punyā* or revenue collection was held there. Motijhīl was also the residence of Warren Hastings when he became Political Resident at the court of Murshidābād, and of Sir John Shore in a similar capacity.

A mosque at Katrā to the north-east of Motijhīl, about

1½ miles from the town of Murshidābād, contains the mausoleum of Murshid Kulī Khān. This was for a long time the chief mosque of the city, and was a place of pilgrimage for devout Muhammadans, Murshid Kulī Khān being regarded as a saint. Katrā Masjid.

Jafarganj, situated at a distance of about a mile from the palace at Murshidābād, contains the old residence of Mīr Jafar when he was commander-in-chief. His audience hall, since turned into an Imāmbāra, and his dwelling-house still exist. Here the last secret conference before the battle of Plassey took place between him and Mr. Watts, the chief factor at Cossimbazar, who entered the house in a palanquin as a *pardanishīn* woman. It is said that Sirāj-ud-daula was murdered here. Jafarganj.

The Mubārak Manzil is a garden-house 2½ miles south-east of the palace; the main buildings and the out-offices were built by the East India Company, and the Sadar Dīwāni Adālat was held here from 1765 to 1781. Nawāb Humāyūn Jāh bought these buildings in the year 1831, and converted them, together with extensive adjoining lands, into a garden-house now known as the Lāl Bangala ('red bungalow'). On the terrace stood the throne of the Sūbahdārs of Bengal, which was made in 1643 at Monghyr; it is a round table of black stone 6 feet in diameter and 18 inches high, with four thick pedestals, the whole hewn out of one block. This has been removed to Calcutta, where it is to find a place in the Victoria Memorial Hall. Mubārak Manzil.

About 2 miles north of the city of Murshidābād is Mahimāpur, once the residence of the famous banker Jagat Seth. Here Watts and Walsh met Mīr Jafar and Rājā Rai Durlabh, three days after the battle of Plassey, and conferred concerning payment of the amounts stipulated for by them before the battle was fought. Clive, Watts, Scrafton, Meeran, and Rai Durlabh were again present here on June 29, 1757, when Clive repudiated the agreement with Umichand. A portion of the house has been washed away by the river; the old place of worship, however, and some ruins remain to this day. Mahimāpur.

On the right bank of the river opposite Motijhīl is the Khushbāgh ('garden of happiness'), the old cemetery of Alī Vardi Khān, Sirāj-ud-daula, and their family. It consists of three walled enclosures, in the centre of which is the principal cemetery, containing the tombs of Alī Vardi Khān and Sirāj-ud-daula. The grounds are laid out as gardens with hedges bordering the walks, and contain many fine trees. On Khushbāgh.

the same side of the river, opposite Jafarganj, are the pleasure-grounds of Hīrajhīl ('lake of diamonds'), and the palace at Mansūrganj constructed by Sirāj-ud-daula before he became Nawāb. It was at Mansūrganj palace that Clive seated Mīr Jafar on the *masnad* of Bengal after the battle of Plassey. Near this was the palace of Murādbāgh, where Clive stayed on his entrance into the city after the battle. Only a portion of the foundation remains, and the greater portion of the Hīrajhīl has been cut away by the Bhāgīrathi. Also on the same side of the river is the Roshnībāgh, consisting of beautiful gardens containing the mausoleum of Shujā Khān, Murshid Kulī Khān's son-in-law and successor.

Arts and manufactures. The principal industries of Murshidābād are those fostered by the luxury of the native court. Carving in ivory is an old speciality of the place; and the artificers, though now few in number, still produce highly finished work. Other manufactures are the embroidery of fancy articles with gold and silver lace, the weaving of silk goods, and the making of musical instruments and *hukkas*.

Municipality. Murshidābād was constituted a municipality in 1869. The income during the decade ending 1901-2 averaged Rs. 24,000 and the expenditure Rs. 23,000. In 1903-4 the income was Rs. 19,000, of which Rs. 5,500 was obtained from a tax on persons; and the expenditure was Rs. 18,000. The official name for Murshidābād is Lālbāgh as the head-quarters of the Lālbāgh subdivision; and it contains subdivisional offices, a sub-jail with accommodation for 12 prisoners, and a dispensary with 22 beds. The most important educational institutions are the Nawāb's *madrasa*, intended exclusively for the relatives of the Nawāb Bahādur, and the Nizāmat high school maintained by the Nawāb.

Rāngāmāti.—Ancient town, now a village, in the Berhampore subdivision of Murshidābād District, Bengal, situated in 24° 1′ N. and 88° 11′ E., on the right bank of the Bhāgīrathi, 6 miles south of Berhampore. Population (1901), 400. The clay here rises into bluffs 40 feet high, which form the only elevated ground in the neighbourhood, and are very conspicuous from the river. Few remains have been found except pottery and the traces of buildings, tanks, and wells; but Rāngāmāti is rich in traditional history. The legend respecting the origin of the name, which means 'red earth,' is that Bibhīshana, brother of Rāvana, being invited to a feast by a poor Brāhman at Rāngāmāti, rained gold on the ground as a token of gratitude. By others the miracle is referred to

Bhu Deb, who through the power of his austerities rained gold. Rāngāmāti has been identified by Mr. Beveridge with the city of Karna Suvarna, the capital of the old kingdom of the same name visited by the Chinese pilgrim Hiuen Tsiang about A.D. 639. It may also have been the site of the chief of the monasteries mentioned by Hiuen Tsiang as Lo-to-wei-chi-seng-kia-lan, a phonetic rendering of the Sanskrit *Ractaviti sanghārāma*.

After the Muhammadan conquest in 1203, Rāngāmāti (according to Mr. Long) formed one of the ten *faujdāris* into which Bengal was then divided. Its Hindu *zamīndār* was a considerable person, and on the occasion of the great *punyā* at Motijhīl in 1767 he received a *khilat* worth Rs. 7,278, or as much as the *zamīndār* of Nadiā. The site of Rāngāmāti was at one time selected in preference to Berhampore as a healthy spot for the erection of barracks. The East India Company formerly had a silk factory here. All that is now left of this ancient town is a bungalow and a silk filature belonging to the Bengal Silk Company.

[H. Beveridge, 'The Site of Karna Suvarna,' *Journal of the Asiatic Society, Bengal*, vol. lxii, pt. i, No. 4; Capt. Wilford, *Asiatic Researches*, vol. ix, p. 39; and Capt. Layard, *Journal of the Asiatic Society, Bengal*, vol. xxii.]

Jessore District (*Yasohara*).—District of the Presidency Division, Bengal, lying between 22° 47′ and 23° 47′ N. and 88° 40′ and 89° 50′ E., with an area of 2,925 square miles. It is bounded on the north and west by Nadiā District; on the south by Khulnā; and on the east by the Madhumatī and Bārāsia rivers, which separate it from Farīdpur.

Boundaries, configuration, and river system.

Jessore forms the central portion of the delta between the Hooghly and the Meghnā estuary, and is an alluvial plain intersected by rivers and watercourses, which in parts of the south of the District spread out into large marshes. The river system was formerly supplied by the Padmā, and the rivers for the most part flowed across the District from the north-west to the south-east. The north-west of the District was gradually raised by their periodical inundations till their connexion with the Padmā silted up; and the rivers, with the sole exception of the Garai, which with its continuation the Madhumatī is still an important offshoot of that river, ceased to be running streams, their beds degenerating into stagnant marshes during the greater part of the year. Jessore, entirely a fluvial formation, is thus naturally divided into two parts: the thickly populated country to the north, now raised by continual deposits

beyond the reach of the inundations by which it was previously affected, declining towards the south into swampy tracts, where the rivers are tidal and the only parts suitable for habitation are the high lands along their banks. The principal rivers, which are connected with one another by numerous cross-channels, are the GARAI and MADHUMATĪ to the east, and proceeding from north to south, the KUMĀR, Nabagangā, Chitrā, Kabadak, BHAIRAB, and ICHĀMATI. The last-mentioned rivers, which were originally distributaries of the Padmā, have now largely silted up in their upper reaches, and are in many cases entirely cut off from their parent stream. The Kumār, a branch of the Mātābhānga, discharges into the Nabagangā at Māgura; it is also connected with the Madhumatī by the Little Bārāsia. The Nabagangā, also formerly an offshoot of the Mātābhānga, no longer gets any flood discharge from that river, and boat traffic is impracticable beyond Jhenida, while between Jhenida and Māgura it is navigable only for about three months in the year. The silting-up process has extended as far south as Binodpur, below which it is navigable throughout the year. The Nabagangā formerly joined the Madhumatī near Lohāgarā, but the connexion has silted up and its waters now flow down the Bānkāna; this river divides into two branches at Patna, the eastern branch which flows into the Madhumatī being known as the Kālia or Gāngnī river, while the western branch continues to be called the Bānkāna. The Kabadak, formerly an offshoot of the Mātābhānga, has silted up in its upper portion, but is navigable below Kotchāndpur by large boats throughout the year. The Bhairab, which leaves the Kabadak on its left bank above Tāhirpur, has similarly silted up in its upper reaches, the channel above Jessore being practically only a line of marshes. The Majudkhāli Khāl brings down some of the waters of the Chitrā to the Bhairab at Simultala, and the Bhairab is also connected with the Chitrā by the Gobrā-Afrā Khāl. The Ichāmatī, which flows across the south-west corner of the District, is navigable in this part of its course throughout the year.

Geology. The District is covered by recent alluvial deposits, consisting of sandy clay and sand along the course of the rivers, and fine silt consolidating into clay in the flatter parts of the river plain, where beds of impure peat also occur. Sand is found in large quantities only along the banks and *chars* of the Madhumatī.

Botany. The stretches of low-lying land under rice cultivation afford a foothold for various marsh species, while the numerous ponds

and ditches are filled with submerged and floating water-plants. Remarkable among these for its rarity, and interesting on account of its distribution to Europe on the one hand and Australia on the other, is the floating *Aldrovanda vesiculosa*. The edges of sluggish creeks are lined with large sedges and bulrushes, and the banks of rivers have a hedge-like scrub jungle. The sides of embankments and village sites, where not occupied by habitations, are densely covered with shrubberies of semi-spontaneous species, interspersed with clumps of planted bamboos and groves of *Areca*, *Moringa*, *Mangifera*, and *Anona*. The *babūl* (*Acacia arabica*) also grows in great abundance, and the banyan (*Ficus indica*), *pīpal* (*Ficus religiosa*), tamarind (*Tamarindus indica*), and mulberry reach a large size. The north and east of the District are dotted with numerous groves of date-palms (*Phoenix acaulis*); and many of the principal roads are lined with fine avenues of banyans, casuarinas (*Casuarina muricata*), and mulberry-trees. Waysides and waste places are filled with grasses and weeds, usually of little intrinsic interest but often striking because of their distribution; many of them have been inadvertently introduced by human agency, and include European or African and American species. There are no forests in the District.

Leopards were formerly common, and wild hog are still very numerous in some parts of the District. The latter do great damage to growing crops, especially to sugar-cane. Fauna.

The mean temperature for the year is 74°. The mean minimum rises from 53° in January to 79° in June, at which point it remains constant until September; the mean maximum is highest (97°) in April. The annual rainfall averages 60 inches, of which 7 fall in May, 11·3 in June, 10·4 in July, 10·7 in August, and 7·7 in September. Temperature and rainfall.

The country once formed a portion of the old kingdom of Banga or Samatata, but the earliest traditions still current are associated with the name of Khānja Alī, who came to the District four and a half centuries ago. He obtained a *jāgīr* from the king of Gaur and made extensive clearances in the Sundarbans, where he appears to have exercised all the rights of sovereignty till his death in 1459. He left numerous mosques and tombs, but most of these are in Khulnā District. The next traditions are connected with Rājā Vikramāditya, one of the chief ministers of Daud Khān, the last king of Bengal, who obtained a grant in the Sundarbans and established a city to which he retired with his family and dependants. History.

The vernacular name of the District is a corruption of Yasohara ('glory depriving,' as it is said to have robbed Gaur of its pre-eminence), the name given by Vikramāditya to his capital, the site of which was at ISWARĪPUR in Khulnā District. Vikramāditya was succeeded by his son Pratāpāditya, the popular hero of the Sundarbans, who gained predominance over the twelve chiefs or Bhuiyās who then held the south and east of Bengal; he was eventually defeated and captured by Rājā Mān Singh, the Hindu leader of Akbar's armies in Bengal from 1589 to 1606. The name Jessore continued to attach itself to the estates which Pratāpāditya had possessed. The military governor, who had charge of them, and who was located at Mirzāngar on the Kabadak, was called the Faujdār of Jessore; and when the head-quarters of the District were brought to Kasbā (where they now are), the name Jessore was applied to the town where the courts were located. Until 1786 the District was still nearly conterminous with Rājā Pratāpāditya's territories; but since that date large areas have from time to time been shorn away, and at the present day it covers barely one-half of its original area.

After the fall of Rājā Pratāpāditya those of his *parganas* which were situated within the present area of this District were divided into three *zamīndāris*, that in the south being held by the Rājā of Jessore, known as the Chānchra Rājā, and that in the north by the Rājā of Naldānga, while the third, called the *zamīndāri* of Bhūshanā, fell into the hands of Rājā Sītā Rām Rai, concerning whom there are numerous legends in the north-east of the District. He was a *talukdār* of a village called Hariharnagar on the bank of the Madhumatī river, and is said to have been deputed by the Nawāb of Dacca to collect his revenues; but as the revenues never went farther than Sītā Rām himself, the Nāwāb sent an army against him and at length succeeded in capturing him about the year 1712. The ruins of Sītā Rām's palace and the various large tanks which he constructed are still to be seen at Muhammadpur.

The Rājās of Jessore or Chānchra trace their origin to Bhābeswar Rai, a soldier in the army of an imperial general, who conferred on him several *parganas* taken from Pratāpāditya. He died in 1588, and was succeeded by his son Mahtāb Rām Rai, who assisted Mān Singh against Pratāpāditya, and at the close of the war was allowed to retain the *parganas* made over to his father. To him succeeded Kandarpa Rai, who added considerably to the estate; and he in turn was followed by Manohar Rai (1649-1705), who is

regarded as the principal founder of the family. The estate, when he inherited it, was of moderate size; but he acquired one *pargana* after another, until, at his death, the property was by far the largest in the neighbourhood. The estate then went to Krishna Rām, who was followed by Sukh Deb Rai (1729–45). The latter divided the estate into a three-quarters share and a one-quarter share, the former being called the Isafpur and the latter the Saidpur estate. The latter was given by Sukh Deb to his brother Syām Sundār, who died without issue, leaving it vacant. It was afterwards conferred by the East India Company upon a landholder in exchange for certain lands near Calcutta. The possessor of the property in 1814, Hājī Muhammad Mohsin, made over the estate in trust for the Hooghly Imāmbāra, which has ever since enjoyed its revenues. Isafpur estate was inherited in 1764 by Srī Kanta Rai, who sustained such heavy losses about the time of the Permanent Settlement that his family was left destitute and forced to fall back upon the bounty of the Government. His grandson, Baradā Kantā, who succeeded in 1817, being a minor, the property was administered by the Court of Wards, and its value greatly increased. In 1823 the Government added to his estate the confiscated *pargana* of Sāhos, and subsequently bestowed on Baradā Kantā the title of Rājā Bahādur in recognition of services rendered by him during the Mutiny. He died in 1880, leaving three sons, the eldest of whom succeeded to the title and estates.

The revenue or financial administration (*dīwāni*) was transferred to the East India Company with that of the rest of Bengal in 1765; but it was not until 1781, when a court was opened at Murali near Jessore town, that British administration was completely established in the District. The first Judge and Magistrate was Mr. Henckell, who founded a market still known as Henckellganj, and was also the first to urge upon the Government the scheme of Sundarbans reclamation (*see* SUNDARBANS). Mr. Rocke, who succeeded him in 1789, transferred the civil station to Jessore, where it still remains. Among the Collectors of Jessore was Mr. R. Thackeray, father of the novelist, who acted in that capacity for a few months in 1805. The boundaries of the District have undergone frequent changes: extensive areas on the east and south have been taken away to form the Districts of Farīdpur and Khulnā, while additions have been made from the Twenty-four Parganas and Nadiā on the west.

The population of the present area was returned at 1,451,507

The people.

in 1872 and 1,939,375 in 1881, but it fell to 1,888,827 in 1891 and 1,813,155 in 1901. The apparent increase in 1881 was probably caused by the inaccuracy of the first Census; the subsequent decline is due to the extremely insanitary conditions which prevail. The banks of the rivers are higher than the country behind them, and depressions are thus formed between the main watercourses. The drainage of these was always difficult, and it has now become almost impossible owing to the silting up of the mouths of the rivers and drainage channels. Stagnant swamps are thus formed, while good drinking-water is scarce, and the homesteads are enveloped in dense jungle. It was in this District that cholera appeared in a violently epidemic form in 1817. Here, too, twenty years later, originated that terribly fatal kind of fever subsequently known as 'Nadiā,' and then as 'Burdwān fever,' which decimated the population of the country from Jessore westwards as far as the Bishnupur subdivision of Bānkura. The first known outbreak occurred near Muhammadpur among a body of some 600 prisoners working on the road from Jessore to Dacca. In 1843 the epidemic seemed to disappear, but it again broke out in 1846. At the present time this malignant type of fever is not noticeable; but a milder form is very prevalent, which is relentlessly at work, destroying many and sapping the vitality of the survivors and reducing their fecundity. Cholera is also prevalent, and small-pox, dysentery, and diarrhoea claim many victims.

The chief statistics of the Census of 1901 are shown below:—

Subdivision.	Area in square miles.	Number of Towns.	Number of Villages.	Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
Jessore	889	1	1,488	561,242	631	− 5·6	37,616
Jhenida	475	1	864	304,899	642	− 2·3	14,893
Māgura	425	...	934	277,381	653	− 8·5	12,538
Narāl	487	...	810	352,281	723	+ 1·1	24,126
Bangaon	649	1	798	317,352	489	− 3·9	15,929
District total	2,925	3	4,894	1,813,155	620	− 4·0	105,102

The three towns are JESSORE, the head-quarters, KOTCHĀNDPUR, and MAHESPUR; but they are all small (only 1 per cent. of the population being urban), and have all lost ground since 1891, though Kotchāndpur has a considerable trade. The population is densest in the east, where the soil is most fertile and still receives occasional deposits of silt, and most scattered

in the Bangaon subdivision to the west. The decadence already referred to is most marked in the country running west and south-west from the Muhammadpur *thāna* on the eastern boundary, the centre of both epidemic cholera and of the 'Burdwān fever.' This unhealthy zone stretches eastwards and northwards beyond the Jessore boundary, and includes the north-western part of Farīdpur and a small area in the north-west of Khulnā. There is little migration except to and from the surrounding Districts. The language of the District is Bengali, the dialects spoken being the Eastern or Musalmānī and Central Bengali. Of the population, 61 per cent. are Muhammadans and 39 per cent. Hindus.

Castes and occupations. The majority of the Muhammadans are Shaikhs (984,000), who are probably in the main the descendants of converts from the aboriginal Namasūdras. This is the most numerous Hindu caste (175,000); but Kāyasths (55,000), Muchīs (48,000), Kaibarttas (45,000), Brāhmans (39,000), Mālos (27,000), Ahīrs and Goālās (26,000), and Sāhās (24,000) are also well represented. A noted colony of Kulin Brāhmans resides at Lakshmīpāsa. Agriculture supports 71 per cent. of the population, industries 15 per cent., commerce 0·6 per cent., and the professions 1·9 per cent.

Christian missions. Christians in 1901 numbered 912, of whom 867 were natives. The Baptist Missionary Society, the London Missionary Society, and a Roman Catholic mission are at work in the District; of these the Roman Catholic and Baptist missions have secured most converts.

General agricultural conditions. The soil is fertile, but the northern part no longer receives the annual deposit of silt which used to enrich it. Here *aus* or autumn rice is the principal staple, but tobacco, sugar-cane, and various cold-season crops are also grown. The low country in the south is chiefly under rice cultivation, *āman* or winter rice predominating. Date-palms are largely grown for the manufacture of sugar. They commence bearing when they are about seven years old, and continue to bear for about twenty-five years. The juice is collected from November to February, the yield of *gur* being about 15 to 20 séers per tree. Indigo was formerly extensively cultivated; but a large number of factories were closed in consequence of the disturbances of 1859–61 (of which some account will be found in the article on NADIĀ DISTRICT), and its production has now almost entirely disappeared. Cultivation has suffered much in the Jhenida subdivision from the drying up of the rivers; in the Māgura subdivision the area under *āman* rice is contracting

owing to deficient floods, but that of *aus* and jute is extending. There is no artificial irrigation.

Chief agricultural statistics and principal crops.

The principal agricultural statistics for 1903-4 are shown below, areas being in square miles :—

Subdivision.	Total.	Cultivated.	Cultivable waste.
Jessore . .	889	506	24
Jhenida . .	475	309	15
Māgura . .	425	268	16
Narāl . . .	487	389	18
Bangaon . .	649	389	14
Total	2,925	1,861	87

Of the cultivated area, it is estimated that 168 square miles are twice cropped. Rice is grown on 1,391 square miles. *Aman* rice is sown in April and May, and reaped in November or December; the land for this crop is usually ploughed four times before sowing, and except in marsh lands the young shoots are transplanted in July. For *aus* rice the ground is ploughed five or six times and the seed is sown broadcast; the land on which it is grown generally yields a cold-season crop as well. *Boro* rice land is hardly ploughed at all; the seed is scattered broadcast in the marshes as they dry up, and the shoots are transplanted when a month old, and sometimes again a month later. Other crops grown are gram (26 square miles), pulses, &c. (198 square miles), oilseeds, including mustard, linseed, and *til* (*Sesamum indicum*) (162 square miles), sugar-cane (15 square miles), jute (48 square miles), and tobacco (32 square miles). On the occasion of the scarcity in the Māgura subdivision in 1897-8, Rs. 64,000 was advanced under the Agriculturists' Loans Act.

Cattle.

The cattle are poor. There are no regular pasture-lands, but cattle are grazed on the banks of marshes and in the date-palm orchards.

Arts and manufactures.

Coarse cotton cloths are woven on hand-looms throughout the District. Mats and baskets, made by the Muchīs and Doms, have a large local sale. Cart-wheels are extensively made; those prepared in the Jhenida subdivision are largely sold at Bāduriā in the Twenty-four Parganas. Lime for white-washing and for eating with *pān* is prepared by Baitis from shells collected in the marshes by women of the Bāgdi caste. Gold and silver ornaments and iron and brass-ware are manufactured. Lac bracelets are made at Lohāgarā by immigrants from the United Provinces. The date-palm sugar industry is

of local importance, but is gradually declining in spite of the imposition of countervailing duties on imported bounty-fed sugar; in 1900–1 there were 117 factories, with an out-turn of 235,000 maunds, valued at 15·15 lakhs.

Commerce.

The principal imports are rice and *sundri* wood (*Heritiera littoralis*) from Backergunge and the Sundarbans; cotton piece-goods, cotton twist, salt, kerosene oil, flour, and potatoes from Calcutta; and coal from Burdwān. The principal exports are paddy, pulses, jute, linseed, tamarind, coco-nuts, unrefined sugar, oil-cake, hides, earthen jars, cart-wheels, bamboos, bones, betel-nuts, timber, *ghī*, and fish, chiefly to Backergunge and Calcutta. Except in the Jhenida subdivision, where there is a large amount of cart traffic, most of the trade is carried by boats and is in the hands of Sāhā and Teli dealers; but considerable quantities of jute and bamboos are sent by rail to Calcutta. Kotchāndpur is the largest and Kesabpur the second largest centre of trade; Naldānga, Chaugācha, Māgura, Jhenida, Chāndkhāli, Khājura, and Binodpur are important trading villages.

Railways and roads.

The central section of the Eastern Bengal State Railway connects Calcutta with Jessore, the head-quarters station, whence it runs south-east to Khulnā. This line is connected with the eastern section of the same railway by a branch from Bangaon to Rānāghāt. Excluding village tracks, the District contains 581 miles of roads, of which 117 miles are metalled; the most important are the Provincial road from Jessore to Calcutta, and those connecting Jessore with Kesabpur and Jhenida, Kālīganj with Hansada, and Jhenida with Borai and Māgura. Road communication is best in the higher land in the head-quarters, Jhenida, and Bangaon subdivisions, where the silting up of the water communications has rendered them more necessary than elsewhere. There are 45 ferries.

Water communications.

The rivers are in many cases no longer navigable in their upper reaches except during the rains, but lower down they are tidal, and carry large boats and small steamers throughout the year. Steamer services ply on alternate weekdays from Khulnā up the Athārabānki and Madhumatī as far as Muhammadpur; daily from Khulnā by Kālia to Lohāgarā, and by the Majudkhāli-Chitrā-Ghorākhāli Khāl and the Nabagangā to Binodpur throughout the year and during the rains as far as Māgura; and on alternate weekdays from Kapilmuni up the Kabadak to Kotchāndpur, feeding the railway at Jhingergācha. During the rains boats ranging up to 2,000 maunds carry jute to the stations on the railway,

while some go direct to Calcutta. Large passenger boats ply on the Nabagangā and Chitrā rivers and on the channels connecting them with the railway stations.

Famine.

There has been no famine in Jessore in recent times; but there was some scarcity in the Māgura subdivision in 1897, when rice sold at 7½ seers to the rupee. Advances were made under the Agriculturists' Loans Act, but Government relief was only necessary on a small scale.

District subdivisions and staff.

For administrative purposes the District is divided into five subdivisions, with head-quarters at JESSORE, JHENIDA, MĀGURA, NARĀL, and BANGAON. The Magistrate-Collector is assisted at head-quarters by a staff of five Deputy-Magistrate-Collectors; the subdivisions of Māgura, Narāl, and Bangaon are in charge of Deputy-Magistrate-Collectors, while the subdivisional officer of Jhenida is usually a Joint-Magistrate. The subdivisional officers of Bangaon, Jhenida, and Narāl are occasionally assisted by Sub-Deputy-Collectors.

Civil and criminal justice.

The civil courts subordinate to the District and Sessions Judge, who is also Judge of Khulnā, are those of a Sub-Judge and four Munsifs at Jessore, three Munsifs at Narāl, and two each at Jhenida, Māgura, and Bangaon. The total number of criminal courts is twenty-three, including an Additional Sessions Judge, who is also employed for part of the year at Khulnā. The District had at one time an unenviable reputation for dacoity, but this is no longer the case. Petty riots arising out of land disputes are common.

Land revenue.

At the settlement of Todar Mal the greater part of the District was included in *sarkār* Khālifatābād, but a small portion in the north-east formed part of *sarkār* Muhammadābād or Bhūshanā. The District was subsequently divided chiefly among the great *zamīndāris* of Isafpur, Saidpur, and Muhammadshāhi. The revenue administration was assumed by the British in 1772, but a Collectorate was not established till 1786, prior to which date the land revenue head-quarters were at Calcutta. Owing to the continual changes of fiscal jurisdiction, comparison of the land revenue with that formerly paid is impossible. The present incidence amounts to only R. 0-11-2 per cultivated acre. Subdivision of property has gone on rapidly under British rule; and there are now 2,444 permanently settled estates, in addition to 70 small estates which are temporarily settled, and 85 held direct by Government. Sub-infeudation of holdings has also been carried on to an enormous extent. The average rate of rent is Rs. 2-15-4 per cultivated acre, but the amount varies according to the

crops for which the land is suitable. The rates for rice land range from Rs. 1-8 to Rs. 12 per acre, for jute from Rs. 2-10 to Rs. 2-13, pulses and oilseeds from Rs. 3 to Rs. 4-8, sugar-cane from Rs. 3 to Rs. 7-8, vegetables from Rs. 3 to Rs. 9, date-palms from Rs. 3-3 to Rs. 9, betel and coco-nut palms from Rs. 10 to Rs. 16, and *pān* gardens from Rs. 8 to Rs. 20, while homestead land fetches Rs. 10 to Rs. 15, and garden land Rs. 10 to Rs. 20 per acre. Rents are lowest in the less fertile Bangaon subdivision, where the maximum rate for rice lands is Rs. 3 per acre. The average quantity of land held by each ryot is 8 acres. The *utbandi* system (*see* NADIĀ DISTRICT) prevails in some parts of the District; *korfā* ryots, who hold land under a middleman, are numerous.

The following table shows the collections of land revenue and of total revenue (principal heads only), in thousands of rupees:—

	1880-1.*	1890-1.	1900-1.	1903-4.
Land revenue . .	10,84	8,69	8,60	8,54
Total revenue . .	18,88	15,42	16,92	16,89

* In 1880-1 the District included a large area which was subsequently transferred to form part of Khulnā.

Local and municipal government.

Outside the municipalities of JESSORE, KOTCHĀNDPUR, and MAHESPUR, local affairs are managed by the District board, with subordinate local boards in each subdivision. In 1903-4 the income of the District board was Rs. 1,70,000, of which Rs. 99,000 was derived from rates; and the expenditure was Rs. 1,68,000.

Public works.

Schemes for the reclamation of the Bhairab river, a standing source of unhealthness, and for opening the Muchikhāli Khāl are under contemplation. The Hallifax Canal, one mile in length, excavated in 1901, connects the Madhumatī and Nabagangā rivers in the Narāl subdivision.

Police and jails.

The District contains 20 police stations and 10 outposts; and in 1903 the force subordinate to the District Superintendent consisted of 5 inspectors, 43 sub-inspectors, 36 head constables, and 421 constables (including 38 town *chaukīdārs* and water police). In addition, there is a rural force of 245 *daffadārs* and 3,839 *chaukīdārs*. The District jail at Jessore town has accommodation for 370 prisoners, and subsidiary jails at each of the subdivisional out-stations for 106.

Education.

The District is less advanced in respect of education than might be expected from its proximity to Calcutta, and in 1901 only 5·8 per cent. of the population (11 males and 0·5 females) could read and write. The number of pupils under instruction

was 34,000 in 1892-3 and 35,000 in 1900-1. In 1903-4, 43,000 boys and 4,000 girls were at school, being respectively 31·1 and 2·6 per cent. of the children of school-going age. The number of educational institutions, public and private, in that year was 1,367: namely, an Arts college, 85 secondary, 1,255 primary, and 26 special schools. The expenditure on education was 2·1 lakhs, of which Rs. 23,000 was met from Provincial funds, Rs. 41,000 from District funds, Rs. 600 from municipal funds, and 1 lakh from fees. The principal educational institutions are the Victoria College at Narāl and high schools at Kālia, Māgura, and Jessore town.

Medical. In 1903 the District contained 12 dispensaries, of which 5 had accommodation for 30 in-patients. At these the cases of 62,000 out-patients and 500 in-patients were treated during the year, and 2,000 operations were performed. The expenditure was Rs. 19,000, of which Rs. 1,700 was met by a Government subvention, Rs. 7,000 from Local and Rs. 3,000 from municipal funds, and Rs. 8,000 from subscriptions.

Vaccination. Vaccination is compulsory only in municipal areas. During 1903-4 the number of persons successfully vaccinated was 54,000, representing 29·9 per 1,000 of the population.

[Sir W. W. Hunter, *Statistical Account of Bengal*, vols. i and ii (1875); Sir J. Westland, *Report on Jessore* (Calcutta, 1874).]

Jessore Subdivision. — Head-quarters subdivision of Jessore District, Bengal, lying between 22° 47′ and 23° 28′ N. and 88° 59′ and 89° 26′ E., with an area of 889 square miles. The subdivision is an alluvial tract, containing some large marshes and traversed by streams which have now silted up except in the lower reaches. The population in 1901 was 561,242, compared with 594,835 in 1891, the density being 631 persons per square mile. It contains one town, JESSORE (population, 8,054), the head-quarters; and 1,488 villages. The principal marts are at BASANTIA, Jessore town, JHINGERGĀCHA, and KESABPUR.

Jhenida Subdivision. — North-western subdivision of Jessore District, Bengal, lying between 23° 22′ and 23° 47′ N. and 88° 57′ and 89° 23′ E., with an area of 475 square miles. The population in 1901 was 304,899, compared with 311,973 in 1891. It contains one town, KOTCHĀNDPUR (population, 9,065), and 864 villages, of which JHENIDA is the head-quarters. The subdivision is a flat, alluvial plain, the surface of which has been raised by the inundations of the Ganges distributary system till it is now above the reach of ordinary floods, and no longer receives the deposits of silt which formerly enriched

it. It contains the most unhealthy portions of the District. The population has consequently receded, and the density is now 642 persons per square mile. The principal marts are at Jhenida and Kotchāndpur.

Māgura Subdivision.—North-eastern subdivision of Jessore District, Bengal, lying between 23° 16′ and 23° 41′ N. and 89° 25′ and 89° 41′ E., with an area of 425 square miles. Its population declined from 303,281 in 1891 to 277,381 in 1901, the density being 653 persons per square mile. It contains 934 villages, of which MĀGURA is the head-quarters; but no town. The subdivision is a deltaic tract, the formation of which is very nearly completed except along its western border, which is still liable to inundation from the floods of the Madhumatī. It contains some very unhealthy tracts, and it is said to have been the focus of the 'Burdwān fever.' The principal marts are at Māgura and MUHAMMADPUR.

Narāl Subdivision.—South-eastern subdivision of Jessore District, Bengal, lying between 22° 58′ and 23° 21′ N. and 89° 23′ and 89° 50′ E., with an area of 487 square miles. The population in 1901 was 352,281, compared with 348,537 in 1891. It contains 810 villages, of which NARĀL is the head-quarters; but no town. The subdivision, which is entirely alluvial, is less unhealthy than other parts of Jessore, and, being lower, it still receives occasional deposits of silt; it is thus more thickly populated, and has a density of 723 persons per square mile. The principal marts are at Narāl, Naldi, and Lohāgarā.

Bangaon Subdivision.—Western subdivision of Jessore District, Bengal, lying between 22° 52′ and 23° 26′ N. and 88° 40′ and 89° 2′ E., with an area of 649 square miles. The population in 1901 was 317,352, compared with 330,201 in 1891. It is a land of semi-stagnant rivers, the soil is comparatively poor, and the subdivision is more thinly populated (489 persons per square mile) than the rest of the District. It contains one town, MAHESPUR (population, 4,180), and 798 villages, of which BANGAON is the head-quarters. The principal marts are at Bangaon and Mahespur.

Amrita Bazar (Māgura).—Village in the head-quarters subdivision of Jessore District, Bengal, situated in 23° 9′ N. and 89° 4′ E. Population (1901), 1,148. It was formed by a family of landholders and named after their mother. A newspaper known as the *Amrita Bazar Patrikā* was formerly published here, but is now printed in Calcutta.

Bangaon Village.—Head-quarters of the subdivision of

the same name in Jessore District, Bengal, situated in 23° 3′ N. and 88° 50′ E. on the Ichāmatī. Population (1901), 3,660. Bangaon is a station on the central section of the Eastern Bengal State Railway, and is also connected with the eastern section of that railway by a branch to Rānāghāt. It contains the usual public offices; the sub-jail has accommodation for 12 prisoners.

Basantia.—Village in the head-quarters subdivision of Jessore District, Bengal, situated in 23° 8′ N. and 89° 22′ E., on the Bhairab, 12 miles east of Jessore town. Population (1901), 1,420. It has a considerable trade in sugar and rice. Being the nearest point to Jessore to which boats of a large size can come, it may be said to serve as a port to that town; there is also a large country traffic by road between Basantia and Jessore.

Jessore Town.—Head-quarters of Jessore District, Bengal, situated in 23° 10′ N. and 89° 13′ E., on the Bhairab river, and on the Eastern Bengal State Railway, 74 miles from Calcutta and 35 miles from Khulnā. Population (1901), 8,054. The name was applied to the village of Kasbā when it was made the head-quarters of the District. The villages of Purāna, Kasbā, Bāgchhar, Sankarpur, and Chānchra lie within municipal limits. The last contains the residence of the Rājās of Chānchra or Jessore (*see* JESSORE DISTRICT), and the remains of a rampart and fosse by which it was once surrounded are still visible. Jessore was constituted a municipality in 1864. The income during the decade ending 1901–2 averaged Rs. 19,000, and the expenditure Rs. 18,000. In 1903–4 the income was Rs. 22,000, of which Rs. 10,000 was derived from a tax on houses and lands and Rs. 5,000 from a conservancy rate; the expenditure was Rs. 21,000. The town possesses the usual public offices, including criminal, revenue, and civil courts, the District jail, a church, a dispensary with 16 beds, a public library, and a high school. The jail has accommodation for 370 prisoners; the industries carried on are brick-making, *surki*- and *khoā*-pounding, cane and bamboo work, and the manufacture of coir mats and jute string. There are three printing presses, and a weekly newspaper and two monthly magazines with a large circulation are published. Part of the town is provided with a filtered water-supply, and it is proposed to extend this by the construction of large water-works.

Jhenida Village.—Head-quarters of the subdivision of the same name in Jessore District, Bengal, situated in 23° 33′ N.

and 89° 11′ E., on the Nabagangā river, 28 miles north of Jessore town. Population (1901), 798. There is a large bazar, with a trade in sugar, rice, and chillies. Communication was formerly carried on chiefly by means of the river; but this has now to a great extent silted up, and is navigable only below the town and for three months in the year. Jhenida is connected by road with Chuādānga station on the Eastern Bengal State Railway. It contains the usual public offices; the sub-jail has accommodation for 11 prisoners.

Jhingergācha.—Village in the head-quarters subdivision of Jessore District, Bengal, situated in 23° 6′ N. and 89° 8′ E., on the Kabadak river. Population (1901), 736. Jhingergācha is a station on the Eastern Bengal State Railway, and steamers ply between it and Kapilmuni in Khulnā District.

Kesabpur.—Village in the head-quarters subdivision of Jessore District, Bengal, situated in 22° 55′ N. and 89° 13′ E., on the Harihar river, about 18 miles south of Jessore town. It is a centre of the sugar trade. An import trade in rice is carried on, and large quantities of earthen pots and vessels are manufactured in connexion with the sugar industry. Another local manufacture is brass-work.

Kotchāndpur.—Town in the Jhenida subdivision of Jessore District, Bengal, situated in 23° 25′ N. and 89° 1′ E., on the left bank of the Kabadak river. Population (1901), 9,065. Kotchāndpur is the largest seat of the sugar trade and manufacture in the District. It was constituted a municipality in 1883 The income during the decade ending 1901–2 averaged Rs. 6,500, and the expenditure Rs. 5,900. In 1903–4 the income was Rs. 7,000, mainly from a tax on persons (or property tax) and a tax on vehicles; and the expenditure was Rs. 6,000.

Lakshmīpāsa.—Village in the Narāl subdivision of Jessore District, Bengal, situated in 23° 11′ N. and 89° 39′ E., on the right bank of the Nabagangā river, where it joins the Bānkāna 10 miles east of Narāl. It is the home of a well-known colony of Kulin Brāhmans; they trace their origin to Rāmānanda Chakrabartti, who emigrated from Sarmangal near Kāila in Backergunge, a great Kulin settlement.

Māgura Village.—Head-quarters of the subdivision of the same name in Jessore District, Bengal, situated in 23° 29′ N. and 89° 26′ E., on the Nabagangā river, where the Muchikhāli Khāl brings down to it the waters of the Kumār. Population (1901), 1,148. It has a brisk trade in sugar and rice, and a number of sugar refineries. Large numbers of reed mats

are made here, and oil is manufactured from mustard seed. Māgura contains the usual public offices; the sub-jail has accommodation for 63 prisoners. It is protected from inundation by the Nabagangā embankment.

Mahespur.—Town in the Bangaon subdivision of Jessore District, Bengal, situated in 23° 21′ N. and 88° 56′ E., on the Kabadak river. Population (1901), 4,180. Mahespur was constituted a municipality in 1869. The income during the decade ending 1901–2 averaged Rs. 3,600, and the expenditure Rs. 2,700. In 1903–4 the income was Rs. 3,400, mainly from a tax on persons (or property tax); and the expenditure was Rs. 2,600.

Muhammadpur.—Village in the Māgura subdivision of Jessore District, Bengal, situated in 23° 24′ N. and 89° 37′ E., on the right bank of the Madhumatī. Population (1901), 44. Muhammadpur was formerly a large town; and a quadrangular fort, many fine tombs, and other remains bear testimony to its ancient greatness. The place is now very unhealthy, and it was in its neighbourhood that the virulent epidemic known as 'Burdwān fever' was first noticed about 1840.

Narāl Village.—Head-quarters of the subdivision of the same name in Jessore District, Bengal, situated in 23° 10′ N. and 89° 30′ E., 22 miles east of Jessore town, on the Chitrā river, which is here very deep and affords a regular route for large boats throughout the year. Population (1901), 1,225. Narāl contains the usual public offices; the sub-jail has accommodation for 12 prisoners, and there is a good collegiate school teaching up to the F.A. standard, with a hostel attached. The Narāl family are the leading landholders of Jessore District, and several works of public utility have been constructed by them.

Boundaries, configuration, and river system.

Khulnā District.—District of the Presidency Division, Bengal, lying between 21° 38′ and 23° 1′ N. and 88° 54′ and 89° 58′ E. Its area, exclusive of 2,688 square miles in the SUNDARBANS on the south, is 2,077 square miles. It occupies the south central portion of the delta between the Hooghly and the Meghnā estuary, and is bounded on the north by Jessore District; on the east by Backergunge; on the west by the Twenty-four Parganas; and on the south by the Bay of Bengal.

The general shape of the District is an irregular parallelogram, which may be divided into four parts: the north-western portion, where the land is well raised; the north-eastern portion, from the Jessore boundary down to the latitude of Bāgherhāt,

where the land is low and covered with swamps; the central portion, also low-lying but now brought under cultivation; and the southern portion, which forms the Khulnā Sundarbans, a tangled network of swamps and rivers, in the greater part of which tillage is impossible and there is no settled population. The whole District forms an alluvial plain intersected by rivers flowing from north to south; their banks, as in all deltaic tracts, rise above the adjacent country, and the land slopes away from them, thus forming a depression between the main lines of the rivers. They have, however, with the exception of the MADHUMATĪ, which forms the eastern boundary of the District, ceased to be true deltaic streams owing to the silting up of their heads. The Madhumatī, with its continuation the Baleswar and its estuary the Haringhāta, still brings down a great quantity of Ganges water to the sea. The other rivers are connected by numerous cross-channels, and are known by a confusing multiplicity of names in different portions of their courses. The most important are the ICHĀMATĪ, the JAMUNĀ, and the Kabadak, which discharge into the sea by the Raimangal and Mālanchā estuaries respectively; and the Bhairab, now a tributary of the Madhumatī, though a great deal of its water finds its way into the Bay of Bengal through the Rūpsa river. There are no lakes; but the District is studded with marshes, the largest of which, the Bayrā Bīl, extends over 40 miles, but has to a great extent been brought under cultivation.

Geology. The District is covered by recent alluvium, consisting of sandy clay and sand along the course of the rivers, and fine silt consolidating into clay in the flatter parts of the river plain, while beds of impure peat commonly occur.

Botany. In the north-west of the District there are extensive groves of date-palms (*Phoenix acaulis*), especially on the outskirts of villages. The north-east and centre of the District are generally inundated during the rainy season, only the river banks and the artificial mounds on which habitations are situated rising above the water. These elevated embankments are, where not occupied by gardens, densely covered with a scrubby jungle of semi-spontaneous species, from which rise bamboos, betel-nut and coco-nut palms, with a few taller trees, the commonest being the *Odina Wodier*, and the most conspicuous the red cotton-tree (*Bombax malabaricum*). The surface of the marshes shows either huge stretches of inundated rice or is covered with matted floating islets of sedges and grasses and various water-lilies, the most striking of these being

the *makana* (*Euryale ferox*). The forests of the Sundarbans in the south produce many kinds of timber and an abundant supply of firewood.

Fauna. The same forests also abound in tigers, leopards, wild buffaloes, hog, swamp deer, spotted deer, hog deer, barking-deer, porcupines, otters, and monkeys. Tigers are very numerous, and their ravages often interfere with the extension of cultivation. Crocodiles are common in the Madhumatī and Bhairab and in all the rivers of the Sundarbans. Snakes of various kinds infest the whole District.

Rainfall. Statistics of temperature are not available. Rainfall commences early, and the annual fall averages 65 inches, of which 6·5 inches fall in May, 12·6 in June, 12·8 in July, 11·8 in August, 8·8 in September, and 4·9 in October.

Natural calamities. Serious floods occurred in 1885, 1890, and 1900, but they are less now than they were before the Madhumatī had opened out its present channel and the other rivers had silted up at their heads. A cyclone accompanied by a storm-wave occurred in the Bāgherhāt subdivision in 1895.

History. In ancient times the District formed part of the old kingdom of Banga or Samatata, and subsequently of the Bāgri division of Bengal constituted by Ballāl Sen. The earliest traditions are, however, associated with the name of Khānja Alī, who came to the District four and a half centuries ago. He obtained a *jāgīr* from the king of Gaur and made extensive clearances in the Sundarbans, where he appears to have exercised all the rights of sovereignty till his death in 1459. He covered the country with numerous mosques and tombs, the remains of some of which are still to be seen at Bāgherhāt and Masjidkur. Vikramāditya, one of the chief ministers of Daud Khān, the last king of Bengal, obtained a grant in the Sundarbans when that monarch rebelled against the king of Delhi, and established at Iswarīpur a city from which the District of Jessore took its name. He was succeeded by his son Pratāpāditya, the popular hero of the Sundarbans, who gained pre-eminence over the twelve chiefs or Bhuiyās then holding possession of Southern Bengal, but was eventually defeated and captured by Mān Singh, Akbar's Hindu general. The present District of Khulnā was formed in 1882 out of the Khulnā and Bāgherhāt subdivisions of Jessore and the Sātkhira subdivision of the Twenty-four Parganas, and its history after the British accession to the *dīwāni* is comprised in the accounts of those Districts.

The people. The population has grown rapidly since 1872, the figures being 1,046,878 in 1872, 1,079,948 in 1881, 1,177,652 in 1881,

and 1,253,043 in 1901. The increase is due to a large expansion of cultivation in the south, central, and south-west portions of the District, and a steady but less rapid growth in the marshy country to the north-east, on the confines of Farīdpur. There has been a decrease of population in the north-western corner, and also in a narrow strip of country running from it first in a southerly and then in a south-easterly direction; in this tract fever is very prevalent. In the northern part of the Sātkhira subdivision the drainage is bad, there are numerous swamps, and malaria is always present. The other northern *thānas* are also low-lying; but though there are numerous marshes, the country is more open and there is less jungle, while the stagnant pools and tanks which are so common in North Sātkhira are rarely to be seen. Dyspepsia, diarrhoea, and dysentery are common when the river water becomes brackish, and cholera sometimes breaks out in an epidemic form.

The chief statistics of the Census of 1901 are given below:—

Subdivision.	Area in square miles.	Number of		Population.	Population per square mile.	Percentage of variation in population between 1891 and 1901.	Number of persons able to read and write.
		Towns.	Villages.				
Kulnā	649	1	929	401,785	619	+ 17.7	24,615
Bāgherhāt	679	...	1,045	363,041	535	+ 6.6	31,279
Sātkhira	749	2	1,467	488,217	652	− 1.5	30,491
District total	2,077*	3	3,441	1,253,043	603*	+ 6.4	86,385

* These figures exclude 2,688 square miles in the Sundarbans. If this area be included, the density for the whole District is 263 persons per square mile.

The three towns are KHULNĀ, the head-quarters, DEBHĀTA, and SĀTKHIRA. There is a large immigration from the Districts of Backergunge, Jessore, and Farīdpur, which supply many of the cultivators on new clearances in the Sundarbans; some of these have settled permanently, but many are still domiciled elsewhere. The dialects spoken are Eastern Bengali, or Musalmānī, and East Central Bengali. Hindus (619,123) and Muhammadans (632,216) are almost equally divided.

The great majority of the Muhammadans are Shaikhs (292,000) and Ajlāfs (285,000), while of the remainder the weaving caste of Jolāhās (27,000) is the most largely represented. Probably most of these are descended from local converts from Hinduism, chiefly from the Chandāls (Namasūdras) and Pods, who still number 191,000 and 105,000 respectively. Of other castes, Kāyasths (39,000), Kaibarttas (36,000), and Brāhmans (31,000) are the most numerous. Castes and occupations.

Agriculture supports 77 per cent. of the population, industries 11·7 per cent., and the professions 1·8 per cent.

Christian missions.

Christians in 1901 numbered 1,275, including 1,228 native Christians, the most important mission at work being the Baptist Missionary Society, which has 18 churches and 24 schools, mostly among the cultivating classes in the Sundarbans. The Oxford Mission has a station at Shelaburiā on the Pusur, about 30 miles south of Khulnā; and some Roman Catholics at Mālgāchi, also in the Sundarbans, are visited occasionally by their priests.

General agricultural conditions.

The clay land of the river plain (*mathiāl*) is most suitable for rice, while cold-season crops, such as pulses, oilseeds, and the betel-vine (*Piper Betle*), grow best on the sandy clay known as *doāshia*. In the decomposed vegetable deposits of the marshes winter rice of the coarsest sort is the only crop grown. Except in the higher land and in the north of the Sātkhira subdivision, partial failure of crops is not uncommon owing to the deposits of salt left by the tide. The south-west of the District suffers especially from this cause; elsewhere the salt is as a rule annually washed away during the rainy season, and the soil is renovated by the deposits left by the overflow of the rivers. The cultivators in some places put up small embankments, known locally as *bheris*, to keep out the salt water. It is estimated that 1,343 square miles were cultivated in 1903–4, and that the cultivable waste amounted to 334 square miles; separate statistics for the subdivisions are not available.

Chief agricultural statistics and principal crops.

Rice is the staple food-grain, covering 1,213 square miles. The principal crop is the winter variety, for which the reclaimed portions of the Sundarbans are famous; the soil is here new and unexhausted, and the out-turn is abundant. In the Sundarbans this crop is sown broadcast in the early part of July and reaped in January. Elsewhere it is sown in nurseries during April and May, transplanted about July, and reaped in November and December; in low lands, however, it is occasionally sown broadcast. Oilseeds, principally mustard, are grown on 100 square miles, while jute covers 14 and tobacco 8 square miles. Date-palms (*Phoenix acaulis*) and betel-nut palms (*Areca Catechu*) are also largely grown. Fisheries are plentiful, and fishing constitutes an important industry.

Improvements in agricultural practice.

Cultivation is being steadily extended into the shallow *bīls* which form so marked a feature of this part of Bengal. In the south progress is being made in pushing back the jungle of the Sundarbans, where the new clearances attract cultivators not only from other parts of the District, but also from Nadiā,